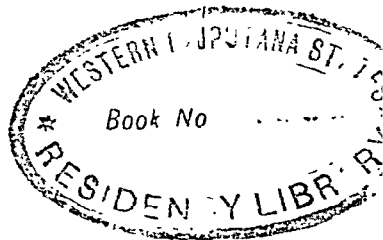




# GENERAL MEDICAL HISTORY

OF

## RAJPUTANA



BY

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## PREFACE.

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THE Government of India in the Foreign Department, on the recommendation of the Director-General of the Indian Medical Service, approved the preparation of Medico-Topographical Accounts of the different States and Medical charges in Rajputana.

As writer of the work on the Jaipur State, the first of these histories, I was appointed to act as Editor of the series.

Medical histories of the Alwar and Bikaner States of Ajmer-Merwara, and of Deoli and the Deoli Irregular Force, have already appeared.

The general account of the Province is now published, as it is uncertain when the remaining volumes will be ready.

Owing to a large portion of the book having been already printed, some changes, which have been recently authorised in the spelling of the names of a few places, have not been made.

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# RAJPUTANA MEDICAL GAZETTEER.

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## CHAPTER I.

### GENERAL DESCRIPTION OF THE PROVINCE.

The country which is known under the name of Rajputana or Rajasthan stretches from  $23^{\circ} 5'$  to  $30^{\circ}$  North Latitude and from  $69^{\circ} 30'$  to  $78^{\circ} 15'$  East Longitude, and contains an area of 132,979 square miles, or 11,498 more than that of the United Kingdom. It has the form of a rhombus with slightly irregular sides, the apexes being on the north and south.

Colonel Abbott divides the Native States into three main divisions for census purposes, *vis.* :—

*Western*, 74,251 square miles.

*Eastern*, 34,236, which is about equal to that of Portugal.

*Southern*, 19,139, equal to Servia.

These divisions will be found useful from a medical point of view also. Colonel Abbott adds that "Nature, by means of the Aravalli Range of mountains, has divided the province diagonally from south-west to north-east into two distinct regions, that lying to the north-west of the range being the larger and containing three-fifths of the total area of Rajputana.

"This north-west tract, which contains the States of Bikaner, Jaisalmer, and Marwar (including Malani), is, with the exception of the sub-montane regions lying below the Aravallis, generally sandy, ill-watered, and unproductive, these unfavourable conditions becoming more pronounced the further west one proceeds.

"Within the south-east tract are situated the States of Jaipur, Alwar, Bharatpur, Dholpur, Karauli, Kishangarh, the Thakurate of Lawa, the Chiefships of Shalipura, a portion of the Tonk State, and the States of Bundi, Kotah, Jhalawar, Banswara, Dungarpur, Partabgarh, Mewar, and Sirohi. This division of Rajputana is blessed with a good rainfall, a fertile soil, and in parts extensive forest tracts, where fodder and food are plentiful.

"The southern portion, embracing the States of Banswara, Dungarpur, Partabgarh, Mewar and Sirohi, is for the most part a more or less close net-work of hills, covered with forest, and enclosing fertile and well-watered valleys and table-lands."

This division is valuable whether considered from a medical, geological, or meteorological aspect.

In the Geology of India (Medlicott and Blanford) it is stated that the Aravalli mountains differ from the other great ranges in India in being entirely composed of disturbed rocks, with the axes of disturbance corresponding with the direction of the chain.

The formations found in them belong to the transition rocks and are of great antiquity; they are quite unfossiliferous.

Rajputana has not been thoroughly explored by geologists, but roughly, on the south-west of the Aravallis, the formation is Archæan, that is, the rocks are of the oldest formation, whether thoroughly crystalline or transitional. The latter are "extensively and complexedly developed in the great Rajputana belt of the Saroda, Udaipur (Mewar), Ajmer, and Delhi country, which is dominated by the Aravalli Range of mountains."

North-west of the great barrier we have the alluvial formations extending across part of Marwar, unfossiliferous, Vindhyan rocks, which Dr. King (Statistical Atlas of India) considers to be "on the whole a sandstone series with some limestone groups, of generally fresh water deposition, though pelagic conditions must have prevailed at different times."

This series is also found on the south-east border of the Province from near Agra to Jhalrapatan.

Some parts of that border towards Nimach touch the Basaltic system of the Deccan and Central India.

The Gondwana formation, which is later than the Vindhyan, is represented in Jaisalmer, as well as the Cretaceous, of which latter the nummulitic limestone is well-known for its beauty as an ornamental building stone.

The geological formations of a country are of particular medical interest on account of the relation they bear to the homes and occupations of the people as well as to their food and health.

In connection with these points it is necessary to consider whether the Rajputana formations yield useful building materials, and, if so, how they are distributed; the presence or not of useful minerals; and the nature of the soils associated with the different strata, as bearing on the production of grain or influencing vegetable growth, or as causing or modifying diseases, and, lastly, diminishing or increasing population, and as influencing transport of food and industrial products.

Throughout the north-eastern division, building stone is almost everywhere available, except in parts of Shekhawati, the northern portion of Jaipur, where recourse has to be made to brick for the more important buildings. For brick-making huge kilns are built requiring a great deal of wood, hence even that material is expensive. Some of the towns are situated near hills from which rough stones can be had for making rubble masonry, but slabs and ornamental stones have to be brought from a distance on the backs of animals. In some places, as, for example, Sambhar and Sikar, beds of Kankar (a conglomerate lime formation) yield blocks which serve the same purpose.

As a rule, throughout the plains the houses of the agriculturists and the poor are constructed of earth, and have flat roofs of the same material or are covered with thick grass thatch. In the south, or wherever the soil is clayey and wood is cheap, as, for example, in parts of Mewar, tiles are used. In the hills wattle and mud walls and grass roofs are common.

In a town the fort and home of the Chief and the shops of the Banias are usually built of stone or brick, but the poorer classes have generally but humble huts, which are, however, cooler and perhaps more comfortable dwellings, and on the whole are the best ventilated, and, if the plinths be high, the most healthy ones.

On the sandstone formations, however, even the poorest can have stone houses, as, for example, in Karauli, Bharatpur, Hindown, Jodhpur and Sojat in Marwar.

The building stones of these districts easily split into large slabs, which serve for making walls, floors, and roofs, but the houses are hot and comparatively small.

Some of these stones are capable of being carved into beautiful tracery, so that many of the buildings in the places which have been mentioned, and in such Capitals as Bikaner and Udaipur, are highly ornamental.

The fine character of these stones and the beauty of the marbles of the Jaipur, Jodhpur, and Jaisalmer States, and of Ajmer, as well as their decorative character, have led to their extensive employment in distant places, notably in the great Moghul cities of Delhi and Agra, and even in far distant Kashmir, and the trade in them has afforded occupation to a large class of workmen.

On the whole, building materials suitable to the wants of the people are cheap and plentiful; and their homes are, therefore, fairly comfortable and afford them sufficient shelter from the inclemency of the weather.

The other mineral wealth of Rajputana, with the exception of salt, is not sufficient to materially affect the prosperity or health of the inhabitants.

There is no coal, although there have been occasional rumours of the discovery of deposits of lignite in the west. Iron is not of great economical value; copper, zinc, and lead exist and have been worked; the first named at Khetri is associated with cobalt and alum, the second in the hilly tracts of Mewar with ochre, and the last is obtained at Ajmer, without, however, being accompanied, as it usually is, by silver in paying quantity.

Excellent garnets are found in the Jaipur, Mewar, and Kishangarh States, and in Ajmer. Gold has been heard of in Mewar, and steatite is quarried in Jaipur and in some other places.

The salt sources of Rajputana are of great value, and the principal, *viz.*, the Sambhar, Pachbadra, and Didwana lakes are worked by the Northern India Salt Revenue Department under treaties with the Native Governments which own them. Others, such as the Kachor-Rewassa lake in Jaipur and the Bharatpur brine wells, are practically closed.



The abundance of cheap salt has been necessarily of value to all in past times, both for the food of men and animals, and for preservation of the skins of the latter.

In addition to affording employment to a vast number of men, it had formerly also a special value in cheapening grain in the neighbourhood of the sources, because the Branjaras, or wandering tribesmen, who took away the mineral on the backs of animals to distant places, returned with their packs laden with grain. I believe that these useful persons are said to have been first mentioned in History about the 14th century.

The railway at the present day does nearly all this work of transit, although the Branjaras still do much carrying work between the lines of rail.

The question of soil which next arises is one of the utmost importance. In the eastern and central portions of Rajputana the soil is light, assimilating to that of the North-Western Provinces, and yielding good crops of cereals. In Haraoti and parts of Mewar it is a rich loam, on which large quantities of wheat, sugar-cane, cotton and opium are grown, while on the sand, which is found everywhere in the north and north-west, only one harvest each year is usually secured, and that chiefly of millets, such as bajra (*Pennisetum typhoideum*) and makka (*Zea Mays*). There is, therefore, a considerable difference in the food of the people in different places.

All through the latter named districts, and in most places they are the so-called desert tracts, the poor live and thrive on coarse cakes of millet and lose health when they are given the finer grains. They are strong and healthy people, but are liable to suffer a good deal from dyspepsia. The rainfall in these districts, being also irregular and variable, especially in Bikaner and parts of Marwar and Shekhawati, there are frequent periods of scarcity, if not regular famines, both as regards grain and fodder, which act prejudicially on the health of the people and of their cattle, the latter being an even almost more important matter; for, if the cattle die from want of nourishment, the fields for a long time are thrown out of cultivation.

One of the wisest of the laws of Manu, the great Hindu law-giver, was that which attached the severest religious penalties to the slaughter of cattle, which thus deterred an improvident race from destroying their means of future recovery from the ill-effects of famine.

It has been narrated that in some places in the last great famine, animals and men were yoked together and were sometimes seen ploughing the ground. It is not uncommon to see camels and kine thus associated.

On the southern borders, where the rainfall is rarely so scanty and the soil is good, life is more easy and the people are therefore better nourished.

The sandy soil, which covers these districts, has the advantage of being dry at all seasons of the year, as even after heavy rain the water soon runs off it.

It is, moreover, comparatively cool at night, and the people who live upon it are less subject to malaria than in other parts of the province.

The population of the low-lying alluvial lands in the Bharatpur State, as might naturally be expected, is most subject to such disorders as well as to rheumatic affections.

The sandy tracts, however, after very heavy rainfall are unhealthy, as, for example, in the year 1892, when in Marwar the grain crops were most luxuriant, there were but few men to reap them owing to the extraordinary prevalence of malarial fevers of a dangerous type.

The so-called desert tract is not devoid of vegetation, but after rain is quite green with vetches and other plants, and in some places there are low-lying grounds with river beds which may become very damp and unhealthy. In the hills of the Aravalli region there are numerous small valleys in which the soil is rich, and the land therefore at times is also unhealthy.

As regards the physical geography of Rajputana, Mr. J. W. Baines, the Census Commissioner for India, in 1893 made the following divisions:—

<i>Ajmer-Merwara, Rajputana.</i>						Square miles.	Population.
B.—Northern Plains—							
(1)	Gangetic system	.	.	.	.	37,242	6,776,199
(2)	Indus system	.	.	.	.	78,540	3,658,360
C.—Central Hills—							
	Western Groups	.	.	.	.	17,197	2,123,901
TOTAL						132,979	12,558,460

He observes that the density of population on the eastern border reaches 300 per mile in one State, and over 200 in the two adjoining it. In Central Rajputana it varies between a density of 184 in the largest State, Jaipur, and of 113 in Jhalawar. In Mewar on the south it is 145 and in the adjacent small hill States it is only 100. The leading state of the west, or Marwar, with 13 inches of uncertain rain, has 67 per mile; Bikaner, with an inch less, 36; and Jaisalmer, with 7 inches of rain, but 7 inhabitants to the mile. Yet he adds "this western region—desert we may call it—not only breeds the finest camels in India, which might be expected of it, but sends forth to every important market in the country the keenest and the most frugal set of traders that ever drove a bargain. It is probable that the large fortunes that are made by these men, and the *animus revertendi* almost invariably maintained by them during their term of spoiling the Egyptian, have kept up the general well-being of this tract and the undoubted wealth of the three or four large towns that it contains."

These remarks are very important, for undoubtedly the wealthy traders do greatly increase the comfort and add to the well-being of the dwellers of all classes in these desert tracts.

Some of them have lately founded and maintained hospitals and dispensaries and have distributed large quantities of quinine amongst the sick, and for a long period past they have maintained *dharmshālas* or poor-houses and have dug wells for the poor.

Again, many of the stalwart sons of the desert have enlisted in the armies of the lords of the plains, and particularly in the present Imperial Service Regiments, and have thus brought money into their own homes without which there would have been little prosperity.

From these conditions it has come to pass that in many places the number of resident women is greatly in excess of that of the men. In former, and even in comparatively recent times, another source of local, though iniquitous prosperity, has been the practice of highway robbery and dakaiti which was indulged in by the inhabitants of these tracts, who used to plunder in the south and east and return on their swift camels to their distant homes without much risk or danger. Still another source of revenue exists. In Jaisalmer and other places many Brahmans perform the religious ceremonies of large numbers of Hindus who have migrated in past times to distant places. They go to the latter at stated periods, and return with money by which their families are maintained.

The uncertain conditions of rainfall in many parts of Rajputana are rendered less injurious in some States by irrigation works. The most ancient of these are the great artificial lakes, such as that of the Jaisamand or Debar lake, until recently the largest artificially made sheet of water in India, and other lakes, in Mewar. After these come numerous smaller works of the kind, as, for example, the tanks in Ajmer-Merwara, which are due chiefly to the enterprise of Colonel Dixon, a former Superintendent and the founder of the town of Beawar or Nayanagar, and, lastly, many irrigation projects in Jaipur, Bharatpur and elsewhere.

These tanks and canals have greatly increased the revenue and cultivable area of land, and, with a larger and more constant supply of food, the prosperity and health of the people.

Public health has also been improved by the construction of roads and railways, so that, although there may be scarcity, it is almost impossible that a great famine should ever again devastate these regions.

Of the more direct changes produced by railways may be mentioned the increase of population of towns through which lines pass or at important junctions where there are workshops, as, for example, at Ajmer, in which the number of inhabitants is far greater than formerly.

The relative distribution of the population into towns and villages has a great bearing upon the health of the people. Rajputana, like most provinces of India, is a country of villages, and on the whole the rural population is the most healthy, though the sanitary condition of their homes is sometimes very appalling and up to the present date very little has been done in the direction of improvement.

Very simple measures alone appear to be necessary or practicable, but money and reliable supervision are the great difficulties which bar the way to advance.

All agriculturists live with their cattle; their wives collect the dung of animals and dry it to use for firing purposes, and they *lip* or plaster the walls of their homes with a mixture

of cowdung and clay. Liquid excreta are passed outside the doors of the houses, and the air is laden with the dried dust of the solid evacuations of human beings and beasts, while the wells and tanks are defiled by the contaminated drainage of the surrounding land and by direct contact with men and cattle.

The fact that a healthy and well formed peasantry is reared in the midst of such an environment much strengthens the theory of immunity.

It is certain that in the hot weather, when the tanks near the villages become very low and their contents are little more than sewage, bad epidemics of diarrhoea, and not unfrequently of cholera when the characteristic microbe is added, break out, but it takes a great deal of concentration for such results to follow. In the towns, although some have been dealt with by sanitarians, we find other evils, such as overcrowding, want of removal of filth of all kinds, bad ventilation, and impaired water-supply.

The villages in the north and west are large.

In the hill tracts, amongst the wild forest tribes, a *Pal*, or collection of Bhil huts, under a *Ganeti* or headman, may extend over miles of ground, each hut being near to the hill into which the inhabitants disappear when the *khilki*, or cry of warning, is raised.

The mean population of the villages in the different divisions is:—

Western, 468.		Southern, 243.		Eastern, 351.
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The mean for all India is 363, and for Rajputana, 346 (Ajmer-Merwara, 572).

Race and religion have also much to do with the health of the people.

The incidence of disease is supposed to vary much as to whether men are vegetarians or eat meat.

The subject has not been properly worked out for want of reliable statistics, though *prima facie* it would appear very easy to do it. For example, it has been stated that cancer is peculiar to meat-eaters, yet in the medical history of Jaipur it has been shown that Jains and Banias, who never touch flesh, would seem to suffer from this disease as much as others. On the other hand, ordinary observation points to the meat-eating Musalmans, Rajputs, Jats, and Minas enjoying better health and being stronger than the classes above mentioned. In the bubonic fever (plague) in Bombay it has been stated by one observer that meat-eaters have suffered little in comparison with vegetarians.

From the meat-eating classes above mentioned come the soldiers, huntsmen, and the bulk of the agriculturists of the country.

The customs of different tribes and castes are also important health factors, amongst them being those relating to birth, marriage, death, and the *pardah* system.

The three former do not vary much from those of the Punjab and the North-Western Provinces.

The higher classes suffer most at birth because the mother is compelled to undergo all the dangers attending parturition in the worst room in the house, which is kept hot and close, and both she and the child are subject to many exhausting ceremonies and trials.

Marriage has its most fatal side in the enormously disproportionate expenses attending it. Some castes exact every rupee that can be obtained from even their poorest brethren in feasting themselves, and the consequent debt leads to privation and under-feeding and to anxiety and trouble of all kinds, which must act prejudicially on all the members of the family. Even Musalmans are not free from these trials.

It is no wonder men pray earnestly that they may not have daughters. A daughter too often means an empty stomach for many long days for her parents.

Death is almost as injurious, because funeral feasts are expensive, and vanity leads, when a little money comes in, to expenditure on ceremonies which a father or even a grand-father may not have been able to perform.

The evils of early marriage are too well known to need much notice here. They are being somewhat lessened by the efforts of such societies in Rajputana as the Walter-krit Sabha, an association for reform amongst Rajputs, and by a similar society which the Kayasths have formed. The date of marriage is postponed, expenses attending the ceremony are reduced, and infanticide, which was formerly so rife amongst Rajputs, has been made much less common if it is not entirely abolished. Funeral expenses are also reduced.

It is not surprising that the usurer and money-lender flourish under these circumstances, more especially because the usual rate of interest is two rupees per cent. per mensem even on the security of land or ornaments.

The landlord is often the money-lender, and many Rajput Thakurs, though not the noblest, increase their incomes by loans to their tenants and neighbours. With a careless population, which rarely saves, a scarcity or famine finds many victims, who with ordinary providence ought to be able to keep themselves in strength, and therefore freedom from disease, at least for one year of high prices.

The hangers-on in towns and villages are always on the verge of starvation, and, when pressure comes, go first to the wall. Amongst these classes are found many cases of enlarged spleen and anæmia. They were thought to give a large number of cataract cases, but experience in Jaipur, where most operations for that affection have been done, does not point to such a conclusion, because men and women of all classes suffer, though perhaps agriculturists and country people are more affected than the dwellers in towns. The true causes, however, are perhaps mal-nutrition due to trouble and want, but more especially to exposure to the great glare of a tropical sun which leads to over-straining of the accommodation of the eye.

The *pardah* is no doubt a very great factor in the causation of disease. Women who never take exercise, and who live in ill-ventilated small rooms without the natural stimulus of a healthy out-door life, must, and do, suffer from dyspepsia, uterine, and other

diseases to a large extent. The comparative rarity of pregnancy, and the smallness of families amongst the wealthy, point to this, though of course early marriage has a great influence also. We have no means of arriving at the comparative mortality of women within and without the *pardah*, but experience seems to prove great excess in the former condition. There is, however, a proverb current in Jaipur, *vis.*, that "Widows are immortal," which shows that hard fare and trouble do not always mean a short life.

Zenana life in rooms which are frightfully unsanitary has undoubtedly a most prejudicial influence on infant health and mortality.

Mr. Eliot, Meteorological Reporter to the Government of India, in discussing the causation of the hot winds of India (Indian Meteorological Memoirs, Vol. VI, page III), concludes from observations taken at Allahabad, Jaipur, and Lahore, that the surface of the ground is always cooler than the air at four feet above it during the night and early morning hours in the dry monsoon.

The hourly Jaipur observations, moreover, show that the greatest heating of the ground occurs very approximately between noon and 1 P.M., and that the difference between the temperature of the ground surface and of the air at four feet above is very large in the hot weather and probably occasionally exceeds  $50^{\circ}$  on the most favourable days. Some of the habits of the people are explained by these facts.

There are several hot springs in Rajputana which have a certain reputation for cure of skin diseases, etc., but more faith is perhaps placed in the power of local Gods or shrines, as, for example, in Vishnu, under his name Kaliyanji, at Digi in Jaipur, who is famous for his ability to cure diseases of the eye and leprosy.

## CHAPTER II.

### METEOROLOGY AND CLIMATE.

The importance of the study of meteorology and climate in connection with disease cannot be over-estimated. Unfortunately, the materials for forming scientific conclusions are at present but slender.

The only first class observatory is at Jaipur and that has been in existence only about 16 years.

Nevertheless, in the Medico-Topographical Report of Jaipur will be found as much information on the subject as is possible.

Tables are given of the readings of all the usual instruments for a sun-spot cycle of the eleven years from 1882 to 1892 (inclusive), and deductions are made from them. It is unnecessary to repeat them at length. Regular observations have been taken at Mount Abu and Ajmer for some years, and also at Sambhar on the salt lake of the same name. Daily telegrams are now sent from the above-named four stations, as well as from Bikaner, Jodhpur, and Kotah, to the Meteorological Reporter to the Government of India, and an observatory has been recently established at Udaipur.

Rain-gauges are kept at a number of places, *viz.*, at all the dispensaries in Jaipur, Jodhpur, Alwar and some other States.

In the Jaipur State, registers of temperature and wind and of many other phenomena are also kept.

At most of the Political Agencies, the rainfall and temperature at sunrise, midday, and sunset were formerly recorded, but the results were of little scientific value, because imperfect instruments were often used, and the exposure of them was unequal as regards the surrounding conditions of buildings, etc. For example, the float gauge which was long used was most uncertain and unreliable in recording the rainfall, and the thermometers were rarely scientific instruments, and were often exposed to the sun or otherwise badly placed.

Mr. Eliot, F.R.S., C.I.E., has been good enough to supply the following notes on the meteorology of Rajputana.

#### BRIEF INTRODUCTORY GEOGRAPHICAL DESCRIPTION OF RAJPUTANA.

Rajputana includes an area of about 132,000 square miles, *i.e.*, about two and-a-half times the size of England.

It is divided by the range of the Aravalli Hills into two natural divisions of nearly equal extent, which may for convenience be termed North-West Rajputana and South-East Rajputana.

North-West Rajputana is, as a whole, a sandy and ill-watered tract, improving gradually from a mere desert in the west and north-west, where it borders on Bahawalpur and Sind, to comparatively fertile lands towards the east and north-east in the neighbourhood of the Aravalli Hills and the tracts bordering on the Punjab.

A great portion of this area is occupied by the great Indian Desert or Thal. The desert region is comparatively low and is covered with sand-hills generally shaped in long straight ridges varying from 50 to 100 feet in height.

The Aravalli Range which separates the two divisions runs from north-east to south-west and is only a well-defined system or ridge in its southern half.

It culminates in the well-known Abu Range, the highest peaks of which rise to upwards of 6,000 feet.

South-East Rajputana is more elevated and fertile than North-West Rajputana, and has a very diversified character. It contains extensive hill ranges and long stretches of woodland.

It is traversed by several largish rivers (tributaries of the Jamna), and in many parts there are fertile table-lands and stretches of excellent soil.

The land falls gradually from the eastern flank of the Aravallis through a country of high hills and deepish valleys much broken up by rocky eminences.

In the south-eastern corners of Udaipur or Mewar the broken country stretches furthest from the main ridge, the outskirts of which merge into a confused net-work of outlying peaks and valleys covered with thick jungles.

The following is a sketch of the normal features of the meteorology of Rajputana.

These features differ very considerably in the north-western and south-eastern divisions of the country, depending partly on its physical configuration, and on its proximity to the Arabian Sea on the west and to the great river plains of Northern India to the east.

The following gives a list of the meteorological stations in or on the outskirts of Rajputana, and on the observations of which is based the following account of the meteorology of Rajputana :—

	Elevation.	POSITION.	
		Latitude. N.	Longitude. E.
<i>(1) North-West Rajputana.</i>	Feet.	° ' "	° ' "
Deesa . . . . .	465'5	24 16	72 14
Pachbadra . . . . .	380	25 55	72 18
Bikaner . . . . .	743'5	27 59	73 14
Sirsa . . . . .	661'6	29 32	75 6
Mount Abu . . . . .	3,945'0	24 36	72 45
<i>(2) South-East Rajputana.</i>			
Delhi . . . . .	717'8	28 40	77 16
Agra . . . . .	555'4	27 10	78 5
Jaipur . . . . .	1,430'6	26 55	75 50
Sambhar . . . . .	1,253'5	26 55	75 14
Ajmer . . . . .	1,611	26 28	74 37
Nimach . . . . .	1,630	24 25	75 0
Indore . . . . .	1,823	22 44	75 53

## GENERAL STATEMENT OF THE METEOROLOGICAL CONDITIONS OR FEATURES.

### DIVISION OF THE YEAR.

The year may be divided primarily into two seasons, usually termed from the prevailing winds in the adjacent seas, the south-west monsoon and north-east monsoon, but which, so far as Northern India is concerned, might better be described as the wet and dry monsoons.



### METEOROLOGY OF THE TRANSITION PERIOD (OCTOBER AND NOVEMBER).

Over the whole of North-Western and Central India the south-west monsoon currents withdraw in the month of September or October. The mean date of their withdrawal from Rajputana is the third or fourth week of September. The next two months, *viz.*, October and November, form a transition period during which the humid monsoon currents are very slowly retreating from North-Eastern India, Burma, and the Peninsula.

Weather is throughout these two months in Rajputana usually fine and dry, with clear skies and light unsteady winds, chiefly from the north-west.

At the commencement of the period pressure is remarkably uniform over the whole of North-Western and Central India. It increases slowly during the period in Upper India relatively to Central India and the Peninsula, and slight gradients for westerly land winds are established in the month of November.

Temperature decreases during this period slowly in October and rapidly in November, and the diurnal range of temperature also increases considerably as the air becomes steadily drier. The period is usually remarkably free from atmospheric disturbances.

Occasionally, however, Rajputana is affected by the cyclonic storms of the period which form in the Bay and pass into India. The cloud area of these storms occasionally extends into Rajputana and gives light to moderate showers chiefly in South-East Rajputana.

The following is a summary of the meteorological conditions of the period :—

DIVISION.	NOVEMBER AND DECEMBER.						
	Average maximum temperature.	Average minimum temperature.	Average mean temperature.	Average diurnal range of temperature.	Average relative humidity.	Average cloud amount.	Average rainfall.
	°	°	°	°			Inch.
North-West Rajputana.	82.3	51.8	67.1	30.5	36	1.6	0.18
South-East Rajputana.	80.1	49.8	65.0	30.3	47	1.3	0.40

### METEOROLOGY OF THE NORTH-EAST MONSOON.

The north-east or dry monsoon may be conveniently divided into two seasons, the meteorological conditions of which differ very largely. They are the cold-weather season, extending from December to February, and the hot-weather season, from March to May (or June).

#### *The Cold-weather Season (December to February).*

The mean pressure conditions in North-Western and Central India during this period are throughout similar to those established in November. Pressure is highest in the North-West Punjab and decreases southwards and eastwards. Hence slight gradients for north-westerly to westerly winds obtain in Rajputana.

Temperature decreases considerably in December and is usually lowest in January.

The diurnal range of temperature is very large, chiefly owing to the prevalence of land winds and the great dryness of the air. Skies are usually free from cloud except during the disturbances of the period, and the rainfall due to these disturbances is small in amount. The weather in Rajputana is disturbed at short intervals by the passage of what are termed cold-weather storms eastwards across Northern India in Sind and Rajputana into the South-East Punjab, the Gangetic Plain or Bengal. These storms originate as feeble, but extensive, depressions, chiefly in the Persian or Baluchistan Plateau but occasionally in Sind and North-West Rajputana, and usually advance almost due eastwards, with a slight southing, at a rate varying between 100 and 400 miles per diem. They give cloudy weather, and occasional light to moderate showers during their passage across Rajputana. Much thunder and lightning occur during their progress, and the accompanying precipitation occasionally takes the form of hail. These hail-storms sometimes completely destroy the crops in the narrow belt of country over which they advance.

The most remarkable feature of these cold-weather storms is the large changes of the temperature conditions which accompany them.

Temperature rises rapidly, the day temperature to a moderate extent and the night temperature rapidly, during a brief period of one to three days before the advent of the storm depression proper.

The mean temperature of the 24 hours before the passage of the storm area proper with its mass of clouds and showery weather is frequently from  $10^{\circ}$  to  $20^{\circ}$  above the normal of the period. Light south-easterly winds usually prevail during this period of increasing and excessive temperature. This condition of high temperature is transferred eastwards in front of the depression, and is more simply described as the eastward passage of a warm wave.

The temperature conditions during the passage of the central depression depend chiefly upon the amount and character of the precipitation.

In the rear of the advancing depression very dry and strong somewhat north-west winds obtain, which reduce humidity and temperature very largely below the conditions which obtain during the passage of the warm wave.

Hence a cool wave follows the advance of the storm, and temperature is occasionally reduced to from  $5^{\circ}$  to  $15^{\circ}$  below the normal. The passage of these storms through Rajputana hence frequently gives excessive variations of temperatures, ranging from  $10^{\circ}$  to  $30^{\circ}$ , or even  $40^{\circ}$ , in total amount in the course of three or four days.

A noteworthy feature of these storms is the excessive dryness of the air and the remarkable clearness and brightness of the atmosphere after their passage.

The number of these travelling depressions or cold-weather storms which affect Rajputana varies very considerably from year to year, but, on an average, usually about eight

depressions of sufficient intensity to be termed storms pass eastwards across Rajputana during this season.

The following gives the periods of the more pronounced cold waves in Rajputana following cold-weather storms in the years 1876—95:—

Year.	Month.	Period of cool wave.
1882	January	11th and 12th.
1885	"	9th and 10th.
1889	January and February	31st Jany. and 1st Feby.
"	February	17th and 18th.
1891	January	17th to 21st.
"	February	3rd and 4th.
1892	"	27th to 29th.
1893	January	17th and 18th.
"	February	13th and 14th.
"	"	16th to 20th.
"	"	22nd and 23rd.
1894	January	23rd to 26th.
"	"	29th to 31st.
"	March	11th and 12th.
"	"	25th and 26th.
1895	January	21st. to 24th.
"	February	3rd to 6th.

The following gives mean data for the two divisions of Rajputana for this season:—

DIVISION.	JANUARY AND FEBRUARY.						
	Average maximum temperature.	Average minimum temperature.	Average mean temperature.	Average diurnal range of temperature.	Average relative humidity.	Average cloud amount.	Average rainfall.
	°	°	°	°			Inch.
North-West Rajputana	77°0	49°7	63°4	27°3	34	2·4	0°55
South-East Rajputana	77°0	48°8	62°9	28°2	47	2·7	0°48

*The Hot-weather Season (March to May).*

The pressure conditions in India change very considerably during this period. Pressure decreases in Northern India with respect to the Peninsula, and usually in April is slightly lower in Sind and the Punjab than elsewhere, and a depression forms in that area, which is quasi-permanent during the next five months and is well-pronounced in May. The chief effect of this low pressure area on the air movement in Rajputana is to draw

winds round from their previous north-westerly directions to west in East Rajputana and south-west in West Rajputana. The air movement increases in intensity with the advance of the season and is strong and vigorous in April and May. A noteworthy feature is the intensity of the day movement. In consequence of the prevailing high temperature these winds are "hot winds" over the greater part of Rajputana.

These hot winds are on the whole strongest and most marked in North and East Rajputana, and in the latter half of April and first half of May.

The increasing south-west winds in West Rajputana in these months exercise an important influence on the temperature, as they are local sea-winds advancing from the sea area off the Sind and Kathiawar coasts.

They are much cooler and damper than the "hot winds" of Central and East Rajputana, and hence tend to reduce temperature in the western districts, more especially in May, and to diminish the diurnal range.

Temperature increases rapidly in March and April over the whole area in the northern and eastern districts, also in May. It is, on the other hand, nearly stationary in May in the south-west districts in consequence of the increasing influence of the local sea-winds of the period. Temperature is excessive in both April and May, and the highest temperatures of the year in this area are usually registered in the fourth week of May. Pachbadra is, on the whole, the hottest station, but the sandy and dry districts of North-West Rajputana are hotter than the slightly more elevated districts of South-East Rajputana.

The air is usually excessively dry, more especially during the hottest period of the day—from noon to 4 or 5 P.M. The humidity percentages at 4 P.M. are not unfrequently below 10, and sometimes humidities as low as 2 or 3 are recorded.

Excessive dryness of the air, high temperature, and large diurnal temperature, and hot dry westerly winds are the chief normal features of the weather of this period in Rajputana.

The weather is disturbed at short intervals by the occurrence of a series of local hot weather storms, *i.e.*, dust-storms and thunderstorms. These occur chiefly during the advance of depressions which form in the area of greatest heat in Upper Sind, and pass eastwards to the foot of the South-East Punjab hills. These dust-storms are usually very small cyclonic whirls, and rarely last more than one or two hours at any place over which they pass.

The accompanying winds are occasionally very violent, and carry thick clouds of dust, which form a very prominent feature of the storm. There is much thunder and lightning and occasional rain or hail. So far as can be judged, the extent of country directly affected by each storm is very limited. Dust-storms are usually reported by the majority of the observing stations on any day of disturbed weather in the season. It is clear that they usually occur as a series affecting the greater part of Rajputana about the same period of the day, and from about 5 P.M. to 8 P.M., and are the local expression of general feeble

disturbance. These storms have been frequently described, as, for example, by Badeley in the Journal of the Bengal Asiatic Society.

The following is a summary of the meteorological conditions of the period :—

DIVISION.	MARCH TO MAY.						
	Average maximum temperature.	Average minimum temperature.	Average mean temperature.	Average diurnal range of temperature.	Average relative humidity.	Average cloud amount.	Average rainfall.
	°	°	°	°			Inch.
North-West Rajputana .	99·3	70·8	85·1	28·5	32	1·9	1·06
South-East Rajputana .	98·0	67·6	82·8	30·4	35	2·2	0·99

#### METEOROLOGY OF THE SOUTH-WEST MONSOON.

The south-west or wet monsoon usually sets in suddenly over the greater part of India in the first fortnight of June and lasts until the end of November or middle of December (if the transition period already described be included).

The south-west monsoon proper in Rajputana extends from June to September. During this period humid south-west to west winds prevail with considerable steadiness over Rajputana, and give moderately high temperature, and moderate diurnal range of temperature, great dampness of the air, much cloud, and frequent rain.

The climatic conditions are hence practically the opposite of those which obtain in the hot weather, and the change from the hot to the rainy season is usually effected in the course of a few days by the sudden intrusion of the massive humid current of the south-west or rainy monsoon. During this period pressure is lowest over Sind and the West Punjab, and the mean direction of the air movement differs little from that which obtains in the hot weather. It is much steadier, and the increase in the hotter hours of the days is much less marked than in the hot weather.

Skies are occasionally clouded in North-West Rajputana, and generally heavily clouded or overcast in South-West Rajputana, except during general breaks in the rains in North-West India.

Temperature hence decreases slightly in North-West Rajputana and considerably in South-East Rajputana.

The chief feature of this period is the more or less general rainfall which occurs at frequent intervals. Much of the rain occurs during periods when the Bombay current sweeps across Rajputana into the western districts of the North-Western Provinces and East Punjab. During such periods moderate to strong south-west winds prevail, and fairly general light to moderate showers are received daily.

In most years a considerable part of the rainfall is received during the westward passage of cyclonic storms across Central India and the head of the Peninsula.

These storms form at frequent intervals during the rainy season, and advance by paths, usually ranging between west and north-west, and hence passing into the North-Western Provinces, Rajputana, Central India, or Gujerat. These storms frequently give heavy cyclonic downpours during their advance, and when, as they do in about one case out of three, they march through Central India or Rajputana, they give more or less general rain. This rain will hence occur with easterly winds in one portion of the storm area, and with westerly winds in another; excessively heavy downpours have been received even in the driest parts of Western Rajputana from these advancing storms or whirls.

The following gives a summary of the meteorological conditions of the period:—

DIVISION.	JUNE TO OCTOBER.						
	Average maximum temperature.	Average minimum temperature.	Average mean temperature.	Average diurnal range of temperature.	Average relative humidity.	Average cloud amount.	Average rainfall.
	°	°	°	°			Inches.
North-West Rajputana.	97°6	77°0	87°3	20°6	62	5°5	13°47
South-East Rajputana.	91°1	72°8	82°0	18°3	63	4°4	25°32

## DISCUSSION OF THE TEMPERATURE AND OTHER CLIMATIC CONDITIONS.

### TEMPERATURE.

The following table gives the mean maximum temperature of twelve stations:—

Division.	STATION.	AVERAGE MONTHLY MAXIMUM TEMPERATURE.											
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
NORTH-WEST RAJ- PUTANA.	Deesa . . . . .	82°7	85°7	95°9	102°9	106°2	101°6	91°3	88°3	92°3	96°0	90°4	85°1
	Pachbadra . . . . .	...	...	...	...	...	...	...	...	...	...	...	...
	Bikaner . . . . .	71°8	75°2	89°4	100°6	106°4	106°0	100°1	96°3	97°9	95°6	83°9	75°2
	Sirsa . . . . .	70°9	75°1	88°7	100°5	106°2	106°5	100°0	97°5	98°2	95°9	84°3	74°9
	Mount Abu . . . . .	67°0	68°9	78°5	85°6	88°6	83°3	74°6	71°9	75°4	78°9	73°3	68°9
SOUTH-EAST RAJPUTANA.	Delhi . . . . .	71°0	75°1	88°2	100°4	104°3	104°2	94°0	91°6	92°6	91°8	83°0	74°3
	Agra . . . . .	73°5	78°2	91°5	102°8	106°7	104°8	92°9	90°4	92°2	92°9	84°0	76°0
	Jaipur . . . . .	73°7	77°9	90°0	100°5	105°5	102°8	91°8	89°9	92°8	93°2	84°6	77°6
	Sambar . . . . .	72°4	76°4	88°2	99°1	104°3	101°7	91°9	89°2	91°6	91°6	82°5	75°3
	Ajmer . . . . .	74°0	77°3	89°3	98°6	103°2	100°3	90°9	87°5	90°4	91°4	83°1	76°2
	Nimach . . . . .	77°4	80°5	91°9	100°4	103°9	98°4	86°9	84°5	87°4	89°9	83°4	77°9
	Indore . . . . .	78°9	82°5	92°6	100°2	102°4	94°2	84°0	82°6	84°8	87°1	81°8	78°5
	Year.												

The preceding table shows that the day temperature is lowest in January. It rises slightly during the next month, but rapidly in March and April. The mean day temperature of March is about  $10^{\circ}$  higher than that of February, and that of April  $10^{\circ}$  to  $14^{\circ}$  higher than that of March. May is the hottest month, and the mean day temperature ranges between  $103.2^{\circ}$  at Ajmer and  $106.4^{\circ}$  at Bikaner.

The day temperature falls slightly in June, considerably in July, and slightly in August. It is somewhat higher in September and October than in August, and falls rapidly during the next two months to the low temperature of January.

The highest temperatures of the year are usually recorded during the last week of the month of May.

The following gives the absolute maximum temperature recorded at these stations and their dates of occurrence:—

Division.	STATION.	Highest maximum temperature.	Date.	Month.	Year.
NORTH-WEST RAJPUTANA		°			
	Deesa . . . .	118°6	26th	May	1886
	Pachbadra . . . .	123°1	25th	"	"
	Bikaner . . . .	...	...	...	...
	Sirsa . . . .	121°1	24th	May	1895
SOUTH-EAST RAJPUTANA	Mount Abu . . . .	101°0	7th	"	1881
	Delhi . . . .	118°0	2nd	June	1889
	Agra . . . .	120°3	18th	"	1878
	Jaipur . . . .	116°3	2nd	"	1889
	Sambhar . . . .	114°5	29th	May	1886
	Ajmer . . . .	119°2	30th	"	1879
	Nimach . . . .	113°8	25th	"	1886
	Indore . . . .	112°7	31st	"	1889

The following gives the mean monthly night temperature data for the same stations :—

Division.	STATION.	AVERAGE MONTHLY MINIMUM TEMPERATURE.												
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
NORTH-WEST RAJPUTANA.	Deesa . . .	51'4	54'7	63'9	70'9	77'5	80'5	77'5	75'4	73'7	66'9	56'8	52'0	66'8
	Pachbadra . . .	...	...	...	...	...	...	...	...	...	...	...	...	...
	Bikaner . . .	50'3	53'4	65'5	76'0	82'2	84'9	82'4	80'4	79'1	72'5	59'6	52'2	69'9
	Sirsa . . .	42'5	46'0	57'1	68'1	76'0	82'9	81'3	79'5	75'0	62'5	48'0	42'3	63'4
	Mount Abu . . .	51'1	53'2	61'8	68'3	70'9	68'0	65'6	64'4	64'8	64'2	57'1	52'5	61'8
SOUTH-EAST RAJPUTANA.	Delhi . . .	48'0	51'5	62'1	73'3	79'2	83'4	80'5	79'1	76'6	68'0	55'4	48'5	67'1
	Agra . . .	48'5	51'7	62'8	73'5	80'7	84'8	80'2	78'6	76'4	67'8	54'9	48'2	67'3
	Jaipur . . .	48'4	50'5	60'9	69'3	76'2	80'1	76'9	75'0	72'5	64'5	53'0	48'1	65'1
	Sambhar . . .	46'1	48'1	59'3	70'3	78'1	81'6	78'0	75'8	73'9	64'7	51'9	45'7	64'6
	Ajmer . . .	44'9	48'4	59'2	70'3	77'7	80'0	76'7	74'5	72'9	63'0	49'4	44'3	63'4
	Nimach . . .	48'9	51'5	61'6	70'7	76'4	77'2	73'8	72'3	70'6	64'6	54'2	49'0	64'2
	Indore . . .	50'3	51'6	60'0	69'1	75'4	74'9	72'3	71'2	70'1	63'7	53'8	48'9	63'5

The mean night temperatures of the months of December and January are almost identical in amount.

The night temperature increases slightly in February and is on the average  $10^{\circ}$  higher in March than in February,  $11^{\circ}$  higher in April than in March, and  $7^{\circ}$  in May than in April, and is hence about  $30^{\circ}$  higher in May than in January. It decreases slightly during the rains and briskly as soon as dry weather with clear skies sets in with October.

The lowest temperatures of the year are usually recorded during the passage of cool waves in the rear of cold-weather storms.



The following gives the absolute minimum temperature at the twelve observing stations during the past 20 years :—

Division.	STATION.	Lowest minimum temperature.	Date.	Month.	Year.	
NORTH-WEST TANA.	RAJPU-	°				
		Deesa . . . .	34°1	18th	February	1880
		Pachbadra . . . .	25°4	"	"	1882
		Bikaner . . . .	...	...	...	...
		Sirsa . . . .	29°9	22nd	December	1878
SOUTH-EAST TANA.	RAJPU-	Mount Abu . . . .	32°8	8th	February	1893
		Delhi . . . .	35°2	20th	January	1889
		Agra . . . .	30°0	2nd	"	1868
		Jaipur . . . .	34°5	30th	December	1886
		Sambhar . . . .	33°0	10th	February	1891
		Ajmer . . . .	30°1	2nd	December	1878
		Nimach . . . .	31°2	4th	February	1886
		Indore . . . .	36°2	3rd	"	"

Temperatures slightly below freezing point are hence very occasionally observed. The low reading of 25°4 at Pachbadra is very doubtful, and minimum temperatures below 30° are of very rare occurrence.

The following table gives mean temperature data :—

Division.	STATION.	AVERAGE MONTHLY MEAN TEMPERATURE.												
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
NORTH-WEST RAJ- PUTANA.	Deesa . . . . .	67°1	70°2	79°9	86°9	91°9	91°1	84°4	81°9	83°0	81°5	73°6	68°6	80°0
	Pachbadra . . . . .	..	...	...	...	...	...	...	...	...	...	...	...	...
	Bikaner . . . . .	61°1	64°3	77°5	88°3	94°3	95°5	91°3	88°4	88°5	84°1	71°8	63°7	80°7
	Sirsa . . . . .	56°7	60°6	71°4	84°3	91°1	94°7	90°7	88°5	86°6	79°2	66°2	58°6	77°4
	Mount Abu . . . . .	59°1	61°?	70°2	77°0	79°8	75°7	70°1	68°2	70°1	71°6	65°2	60°7	69°0
SOUTH-EAST RAJPUTANA.	Delhi . . . . .	59°5	63°3	75°2	86°9	91°8	93°8	87°3	85°4	84°6	79°9	69°2	61°4	78°2
	Agra . . . . .	61°0	65°0	77°2	88°2	93°7	94°8	86°6	84°5	84°3	80°4	69°5	62°1	78°9
	Jaipur . . . . .	61°1	64°0	75°5	84°9	90°9	91°5	84°4	82°5	82°7	78°9	68°8	62°9	77°6
	Sambhar . . . . .	59°3	62°3	73°8	84°7	91°2	91°7	85°0	82°5	82°8	78°2	67°2	60°5	76°7
	Ajmer . . . . .	59°5	62°9	74°3	84°5	90°5	90°2	85°8	81°0	81°7	77°2	66°3	60°3	76°0
	Nimach . . . . .	63°2	69°0	76°8	85°6	90°2	87°8	80°4	78°4	79°0	77°3	69°8	63°5	76°4
	Indore . . . . .	64°6	67°1	76°3	84°7	88°9	84°6	78°2	76°9	77°5	75°4	67°8	63°7	75°5

The mean daily temperature increases from an average of 60° in January to 92° in May and 93° in June.

It falls slightly during the next three months to an average of about  $85^{\circ}$  in September, and decreases rapidly in October and November to a mean of  $62^{\circ}$  in November. Throughout the whole year the north-western division, and more especially Jodhpur or Marwar, is warmer than South-East Rajputana.

An important feature of the temperature conditions is the diurnal range. The diurnal range is large during the period from October to May, ranging between  $25^{\circ}$  and  $32^{\circ}$ . It differs slightly in amount in different months, and is on the whole greatest in November, in the cold weather, when it averages  $31^{\circ}$ , and in April, in the hot weather, when it averages  $30^{\circ}$ .

The means of Bikaner are probably erroneous due to unsatisfactory observations for many years.

The stations of greatest range of temperature are Deesa, Sirsa, Jaipur, and Ajmer :—

Division.	STATION.	AVERAGE MONTHLY DIURNAL RANGE OF TEMPERATURE.												
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
NORTH-WEST RAJPUTANA.	Deesa . . . . .	31'3	31'0	32'0	32'0	28'7	21'1	13'8	12'9	18'6	29'1	33'6	33'1	26'4
	Pachbadra . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...
	Bikaner . . . . .	21'5	21'8	23'9	24'6	24'2	24'1	17'7	15'9	18'8	23'1	24'3	23'0	21'7
	Sirsa . . . . .	28'4	29'1	28'6	32'4	30'2	23'6	18'7	18'0	23'2	33'4	36'3	32'6	27'9
	Mount Abu . . . . .	15'9	15'7	16'7	17'3	17'7	15'3	9'0	7'5	10'6	14'7	16'2	16'4	14'4
SOUTH-EAST RAJPUTANA.	Delhi . . . . .	23'0	23'6	26'1	27'1	25'1	20'8	13'5	12'5	16'0	23'8	27'6	25'8	22'1
	Agra . . . . .	25'0	26'5	28'7	29'3	26'0	20'0	12'7	11'8	15'8	25'1	29'1	27'8	23'2
	Jaipur . . . . .	25'3	27'9	29'1	31'2	29'3	22'7	14'9	14'9	20'3	28'7	31'6	29'5	25'5
	Sambhar . . . . .	26'3	28'3	28'9	28'8	26'2	20'1	13'9	13'4	18'1	26'9	30'6	29'6	24'3
	Ajmer . . . . .	29'1	28'9	30'1	28'3	25'5	20'3	14'2	13'0	17'5	28'4	33'7	31'0	25'3
	Nimach . . . . .	28'5	29'0	30'3	29'7	27'5	21'2	13'1	12'2	16'8	25'3	29'2	28'9	24'1
	Indore . . . . .	28'6	30'9	32'0	31'1	27'0	19'3	11'7	11'4	14'7	23'4	28'0	29'6	24'0

The diurnal range is much smaller from June to September, and more especially in July and August, which are most fully representative of the rains in Rajputana. The range does not differ much in amount over the whole area, but is greater in the northern and north-eastern districts, represented by Bikaner and Sirsa. The mean diurnal range in July is  $14^{\circ}$  and in August  $13\frac{1}{2}^{\circ}$ .

## HUMIDITY.

The following table gives mean data for the stations for which they are available :—

		AVERAGE MONTHLY MEAN RELATIVE HUMIDITY.												
Division.	STATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
NORTH-WEST RAJPUTANA.	Deesa . . . . .	38	29	30	28	39	52	74	75	66	42	34	37	45
	Pachbadra . . . . .	No data.												
	Bikanir . . . . .													
	Sirsa . . . . .													
	Mount Abu . . . . .	41	34	31	28	35	67	88	90	75	44	37	41	51
SOUTH-EAST RAJPUTANA.	Delhi . . . . .	No data.												
	Agra . . . . .	56	47	38	28	31	45	75	76	67	49	44	53	51
	Jaipur . . . . .	51	43	38	28	31	50	76	78	64	45	43	49	50
	Sambhar . . . . .	No data.												
	Ajmer . . . . .	51	44	40	34	38	51	71	76	66	49	46	50	51
	Nimach . . . . .	No data.												
	Indore . . . . .													

The data indicate that the air is very dry during the eight months from October to May. Humidity has two minima during this period, *viz.*, in November and April, corresponding to the two months of greatest diurnal range. Humidity is, on the other hand, excessive in the four months June to September, and the humidity is hence an important determinant in the meteorology.

The table shows that the air is throughout drier in North-West than in South-East Rajputana.

The mean humidity of South-East Rajputana decreases from 51 in January to 31 in April, and increases from 35 in May and 50 in June, to 75 in July and August.

It averages 65 in September, and falls to 47 in October, and 44 in November, when it rises to 50 in December and 51 in January.

## CLOUD.

The following gives mean data for five stations :—

Division.	STATION.	AVERAGE MONTHLY PROPORTION OF CLOUDED SKY.												
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
NORTH-WEST RAJ- PUTANA.	Deesa . . . . .	2'3	2'5	2'4	1'8	1'5	5'0	8'1	8'0	4'7	1'9	1'4	1'7	1'1
	Pachbadra . . . . .	No data												
	Bikanir . . . . .													
	Sirsa . . . . .													
SOUTH-EAST RAJPUTANA.	Mount Abu . . . . .	2'6	2'8	2'6	2'2	1'6	5'3	8'8	8'6	5'4	2'1	1'3	1'8	8'3
	Delhi . . . . .	No data.												
	Agra . . . . .	2'4	2'4	2'1	1'4	1'2	3'5	6'6	6'4	3'7	0'9	0'6	1'4	2'7
	Jaipur . . . . .	3'2	2'8	2'9	2'2	2'0	4'3	7'5	7'2	3'5	1'8	1'0	1'9	3'4
	Sambhar . . . . .	No data.												
	Ajmer . . . . .	2'3	2'3	2'4	2'0	1'6	3'4	6'2	6'2	3'2	1'1	0'9	1'4	2'8
	Nimach . . . . .	No data.												
	Indore . . . . .													

The law of variation of the cloud proportion is similar to that of the humidity. There are two months of minimum cloud amount, *viz.*, November (0'9) and May (1'7), and two of maximum, *viz.*, the absolute maximum during the rains in July and a secondary, and feeble maximum in January.

## RAINFALL.

Division.		STATION.	AVERAGE MONTHLY AND ANNUAL RAINFALL.											
			January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
NORTH-WEST RAJPUTANA.	Deesa . . . . .	0'13	0'17	0'08	0'05	0'20	2'23	9'45	8'34	2'99	0'72	0'09	0'04	24'49
	Pachbadra . . . . .	0'33	0'68	0'07	0'04	0'76	0'70	2'62	3'70	1'61	0'04	...	0'07	10'02
	Bikanir . . . . .	0'24	0'23	0'15	0'21	1'17	1'73	3'42	3'29	1'04	0'04	0'06	0'06	11'64
	Sirsa . . . . .	0'70	0'32	0'46	0'38	0'65	2'24	3'75	3'79	1'89	0'28	0'03	0'34	14'84
	Mount Abu . . . . .	0'25	0'36	0'13	0'06	1'07	5'21	22'24	23'39	8'00	1'80	0'17	0'20	62'88
SOUTH-EAST RAJPUTANA.	Delhi . . . . .	0'99	0'54	0'71	0'36	0'69	3'23	8'74	7'41	4'45	0'47	0'07	0'34	28'04
	Agra . . . . .	0'54	0'30	0'23	0'16	0'66	2'84	10'06	6'89	4'42	0'39	0'03	0'22	26'74
	Jaipur . . . . .	0'33	0'20	0'26	0'20	0'55	3'08	9'27	7'53	3'00	0'26	0'10	0'36	25'11
	Sambhar . . . . .	0'24	0'20	0'26	0'14	0'94	1'53	7'07	6'55	3'22	0'41	0'17	0'32	21'01
	Ajmer . . . . .	0'25	0'34	0'35	0'09	0'71	2'44	6'82	7'63	3'02	0'34	0'13	0'26	22'3
	Nimach . . . . .	0'12	0'16	0'10	0'14	0'53	4'02	10'56	10'61	4'83	0'85	0'07	0'21	32'51
	Indore . . . . .	0'31	0'27	0'02	0'11	0'55	6'73	10'14	7'65	7'57	11'19	0'21	0'88	45'63

*Rajputana.*

STATION.	AVERAGE MONTHLY AND ANNUAL RAINFALL.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
	"	"	"	"	"	"	"	"	"	"	"	"	"
Jaisalmer . . . .	0'23	0'10	0'02	0'02	0'22	0'79	2'20	2'44	0'49	0'01	0'04	0'17	6'73
Phalodi (Marwar) . .	0'12	0'10	0'11	0'04	0'25	0'83	2'81	3'41	0'03	...	...	0'06	8'36
Bikaner . . . . .	0'24	0'23	0'15	0'21	1'17	1'73	3'42	3'29	1'04	0'04	0'06	0'06	11'64
Nagore (Marwar) . .	0'20	0'10	0'04	0'04	0'37	2'37	3'09	4'65	2'18	0'11	...	0'08	14'13
Didwana ( Do. ) . .	0'32	0'16	0'21	0'11	0'50	1'56	5'77	6'29	1'77	0'19	0'05	0'11	17'04
Jhunjhunu (Jaipur) . .	0'46	0'21	0'18	0'11	0'46	3'55	8'02	5'36	2'25	0'30	0'02	0'18	21'10
Khetri ( Do. ) . . .	0'49	1'11	0'35	0'18	0'28	3'11	9'61	7'31	1'89	0'56	...	0'07	24'96
Sikar ( Do. ) . . . .	0'24	0'24	0'08	0'12	0'12	2'55	7'22	6'49	0'54	0'50	0'02	0'09	18'21
Sri Madhopur (Do.) . .	0'36	0'66	0'37	0'21	0'76	3'34	11'13	9'38	1'60	0'06	...	0'23	28'10
Alwar . . . . .	0'49	0'41	0'26	0'09	1'09	3'77	10'20	10'48	4'93	1'00	0'12	0'39	38'23
Bharatpur . . . . .	0'38	0'20	0'18	0'13	0'58	2'06	8'78	8'22	4'18	0'44	0'02	0'21	25'38
Bandikui (Jaipur) . .	0'37	0'23	0'24	0'11	0'58	1'93	5'66	10'02	1'86	0'22	0'01	0'28	21'51
Jaipur Do. ) . . . .	0'33	0'20	0'26	0'20	0'55	3'08	9'27	7'53	3'00	0'26	0'10	0'36	25'14
Sambhar ( Do. ) . . .	0'24	0'20	0'26	0'14	0'94	1'53	7'03	6'55	3'22	0'41	0'17	0'32	21'01
Karauli . . . . .	0'37	0'15	0'08	0'07	0'50	4'07	11'32	11'01	4'51	0'17	0'05	0'21	32'51
Lalsot (Jaipur) . . .	0'30	0'10	0'01	0'03	0'14	2'86	8'68	11'23	2'73	0'33	0'06	0'10	26'57
Tonk . . . . .	0'13	0'25	0'17	0'07	0'38	3'18	9'74	10'64	2'68	0'66	0'03	0'19	28'12
Sewai Madhopur (Jaipur) . . . . .	0'19	0'16	0'09	0'08	0'31	4'59	13'07	14'54	1'73	0'27	2'03	0'17	35'23
Deoli . . . . .	0'23	0'19	0'13	0'15	0'97	4'13	10'88	10'84	4'43	0'50	0'12	0'16	32'73

*Rajputana*—continued.

STATION.	AVERAGE MONTHLY AND ANNUAL RAINFALL.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Kotah . . . .	"	"	"	"	"	"	"	"	"	"	"	"	"
Jhalrapatan . . . .	0'16	0'25	0'05	0'04	0'90	3'55	9'65	10'17	4'55	0'45	0'03	0'26	30'06
Jhalrapatan . . . .	0'18	0'32	0'16	0'03	0'54	4'92	15'86	9'99	5'57	0'61	0'15	0'44	38'77
Ajmer . . . .	0'25	0'34	0'35	0'09	0'71	2'44	6'82	7'63	3'02	0'34	0'13	0'26	22'38
Nasirabad (Ajmer)	0'13	0'39	0'10	0'04	0'64	1'92	7'03	6'20	2'79	0'27	0'11	0'24	19'86
Malpura (Jaipur)	0'23	0'07	0'12	0'01	0'25	1'45	6'15	10'25	1'57	0'04	0'01	0'11	20'26
Beawar (Merwara)	0'23	0'11	0'15	0'10	0'39	2'10	7'36	6'13	2'74	0'20	0'14	0'19	19'83
Jodhpur (Marwara)	0'24	0'21	0'03	0'06	0'52	1'31	3'41	5'38	1'91	0'16	0'03	0'08	13'34
Pachbadra ( Do. )	0'33	0'08	0'07	0'04	0'76	0'70	2'62	3'70	1'61	0'04	...	0'07	10'02
Josol ( Do. )	0'23	0'07	0'09	0'04	0'49	1'62	3'44	4'08	0'87	0'02	...	0'05	11'00
Barmar ( Do. )	0'20	0'09	0'08	0'01	0'42	1'50	2'88	2'61	0'99	0'03	0'01	0'04	8'86
Pali ( Do. )	0'15	0'06	...	...	0'33	2'71	4'07	6'41	0'93	0'10	...	0'03	14'79
Shahpura . . . .	0'10	0'20	0'13	0'08	0'90	3'28	6'42	8'27	3'88	0'53	0'05	0'21	24'05
Erinapura (Sirohi)	0'13	0'24	0'08	0'03	0'52	1'59	5'54	4'96	2'50	0'37	0'07	0'11	16'14
Sirohi ( Do. )	0'15	0'19	...	0'04	0'82	3'75	7'43	6'92	1'79	...	...	...	21'09
Mount Abu ( Do. )	0'25	0'36	0'13	0'06	1'07	5'21	22'24	23'10	8'00	1'80	0'17	0'20	62'88
Kotra (Mewar)	0'11	0'24	0'01	0'03	0'81	3'35	12'81	10'24	4'96	0'63	0'10	0'11	33'40
Udaipur ( Do. )	0'08	0'17	0'04	0'07	0'55	3'16	8'20	7'57	5'51	0'52	0'08	0'05	26'00
Partabgarh . . . .	0'17	0'06	0'02	...	0'53	4'93	11'09	11'56	4'76	1'07	0'24	0'12	34'54
Kherwara (Mewar)	0'08	0'18	0'03	0'02	0'45	4'26	9'08	8'24	4'40	0'60	0'10	0'07	27'51
Banswara . . . .	0'40	0'15	...	...	0'40	5'65	12'19	11'93	8'05	0'95	0'14	0'32	40'18

The preceding remarks and the tables hence indicate that May is the hottest month of the year, July the month of least diurnal range of temperature, maximum humidity and largest amount of cloud, and that November is the month of least cloud amount, greatest diurnal range and minimum humidity.

The months of June and September or October are periods of rapid transition from the dry to the rainy season and *vice versa*.

### CHAPTER III.

#### POLITICAL DIVISIONS OF THE COUNTRY AND THEIR INFLUENCE ON THE PEOPLE.

Rajputana is divisible politically into (1) British Territory (Ajmer-Merwara), with an area of 2,711 square miles and population of 542,358, and (2) Native States, with an area of 130,268 square miles, and 12,016,102 inhabitants.

"The latter are ruled by Native Chiefs, who are subject to the advice and control of the British Government in its capacity of a paramount power, which is represented by Political Officers at the principal courts, who are under the supervision of the Agent to the Governor General in Rajputana, whose head-quarters are at Mount Abu in the hot weather and, when he is not moving about the province, at Ajmer in the cold season."—(*Census Commissioner*.) The Agent to the Governor General is *ex-officio* Chief Commissioner of Ajmer-Merwara.

The following table shows the different States and a few particulars relating to them:—

Name of State.	Area in square miles.	Population.	Name and title of present Chief.	Capital.	Designation of Political Officer	Place of Residency or Agency.	Supervising Officer of Medical Institutions.
Jaipur .	15,579	2,832,276	His Highness Maharaja Madho Singh Bahadur, G.C.S.I.	Jaipur .	Resident 2nd class.	Jaipur .	Residency Surgeon, Jaipur.
Kishangarh .	858	125,516	His Highness Maharaja Sardul Singh Bahadur, G.C.I.E.	Kishangarh .	Ditto .	Ditto .	Ditto.
Marwar .	34,963	2,519,868	His Highness Maharaja Sirdar Singh Bahadur .	Jodhpur .	Ditto .	Jodhpur .	Residency Surgeon, W. R. States.
Bikaner .	23,173	831,955	His Highness Maharaja Ganga Singh Bahadur .	Bikaner .	Political Agent	Bikaner .	Civil Surgeon.
Jaisalmer .	16,062	115,791	His Highness Maharawal Salivahan Bahadur .	Jaisalmer .	Resident 2nd class.	Jodhpur .	Residency Surgeon, W. R. States.
Sirohi .	1,964	186,025	His Highness Maharao Kesri Singh Bahadur, K.C.I.E.	Sirohi .	Ditto .	Ditto .	Ditto.
Bharatpur .	1,982	640,393	His Highness Maharaja Ram Singh Bahadur .	Bharatpur .	Political Agent	Bharatpur .	Agency Surgeon.
Alwar .	3,144	767,786	His Highness Maharaja Sawal Jai Singh Bahadur .	Alwar .	Ditto .	Alwar .	Ditto.
Dholpur .	1,154	279,890	His Highness Maharaj Rana Nihal Singh Bahadur .	Dholpur .	Ditto .	Bharatpur .	Directly under the Administrative Medical Officer.
Karauli .	1,242	156,587	His Highness Maharaja Bhanwar Pal Deo Bahadur, K.C.I.E.	Karauli .	Ditto .	Ditto .	Ditto.
Tonk .	1,113	198,934	His Highness Nawab Mohammed Ibrahim Ali Khan, G.C.I.E.	Tonk .	Ditto .	Deoli .	Ditto
Shahpura .	495	63,646	Raja Dhiraj Nahar Singh .	Shahpura .	Ditto .	Ditto .	Ditto.
Bundi .	2,220	295,675	His Highness Maharao Raja Raghubir Singh Bahadur .	Bundi .	Ditto .	Ditto .	Ditto.
Kotah .	3,784	526,267	His Highness Maharao Ummed Singh Bahadur .	Kotah .	Ditto .	Ditto .	Ditto.
Jhalawar .	2,722	343,601	His Highness Raj Rana Bhowani Singh .	Jhalapattan .	Ditto .	Kotah .	Agency Surgeon, Kotah Jhalawar.
Mewar .	12,753	1,728,547	His Highness Maharana Fateh Singh Bahadur, G.C.S.I.	Udaipur .	Resident, 2nd class.	Udaipur .	Residency Surgeon.
Partabgarh .	886	87,975	His Highness Maharawat Raghunath Singh Bahadur .	Deolia .	Asst. Resident, Mewar.	Dungarpur .	Ditto.
Banswara .	1,667	180,268	His Highness Maharawal Lachhman Singh Bahadur .	Banswara .	Ditto .	Ditto .	Ditto.
Kushalgarh .	339	5775	Rao Udai Singh .	Kushalgarh .	Ditto .	Ditto .	Ditto.
Dungarpur .	1,447	98,448	His Highness Maharawal Bijay Singh Bahadur .	(b) Dungarpur .	Ditto .	Ditto .	Ditto.



The principal interest of this classification to the sanitarian and physician is its bearing upon the prosperity of the people, as affected by the religion of the ruler, whether he is the head of a large or small State or of a prosperous one, and personally not extravagant or in debt, whether he is favourable to progress on modern lines or otherwise, and, lastly, whether the central authority is strong or weak and can keep its representatives in the rural districts in good order. In Native States, moreover, the fact that land is owned by a resident Noble, who manages his own estate and presumably does his best for his own interests, or it is held directly from the Chief and therefore managed by officials, who have only a transient and, perhaps, a self-interested acquaintance with the people, is of great importance.

The present condition of the different States will be indicated *chiefly by results* in each local history, but a few general remarks will not be out of place. In a more wealthy State, with a large capital, the tendency is for the rich people to crowd into it, and for most of the money which is available for public improvements to be spent in it; the houses, moreover, are larger and more substantial, and the people participate in the amusements and pleasures of the Court. In years of famine, Native Princes have often opened their coffers, and have constructed huge tank embankments, thus providing for irrigation of large tracts of country below them, and latterly roads have been made and other public works have been carried out. The smaller Chiefs are less able to do this; moreover, as they have, equally with the larger ones, the expense of a Court to keep up and the burden of providing in some cases for a disproportionate number of hangers on, they are not able to afford to maintain dispensaries or poor-houses.

The Noble is, to some extent, influenced by the desire to keep good tenants, to treat them well, even although he may not be wealthy, because the Hindu will migrate if hard pressed, much as he objects to leave the home, that is to say, the *Bhum* or ancestral land of his forefathers. Such a Noble can, however, but rarely undertake public works or provide medical attendance, though this is being done by a few of the richer men.

Officials, if corrupt, do most harm, as they may extort so much that the villager can hardly support life, and thus he becomes a prey to disease.

The British Government and its officers, both Political and Medical, are naturally in favour of progress, and therefore exert their influence, when possible, in that direction with Native Princes. It is to them that the advancement of modern medicine was at first due in Rajputana.

The smaller States seem indifferent, in many cases, to the extension of dispensaries in the districts, while their rulers are most anxious to keep up such institutions at the Capital. It is not understood by many as yet why Hospital Assistants should require so much more pay than the indigenous *baid*s and *hakims*, and this may be one reason for dislike to greater expenditure, but the chief one no doubt is, as already stated, the comparatively heavy cost which attends the keeping up of a small Court.

There is a good deal of charity of a religious character in Rajputana on the part of both Chiefs and Nobles as well as of wealthy bankers. In most States a daily dole of food or

*pattia* is given to a large number of poor persons from the State stores. The cost of this is usually defrayed from a bequest or from the money which is given as *pun* or charity on the death of a Chief or Noble. *Dharamsalas*, which are founded principally by merchants, are travellers' resting-places, with endowments for the poor. In some places, as before noted, quinine is distributed for nothing. In some estates, Kishangarh, for example, food is distributed to all Rajputs by the State which practice has a tendency to pauperize.

#### INFLUENCE OF THE LOCAL REGIMENTS ON THE PROVINCE.

There are four local corps in Rajputana, which were recruited to keep the peace in the districts inhabited by lawless tribes, that were never thoroughly subdued by the Native Princes to whom they were nominally subservient. Enlistment in these regiments afforded a living, as well as scope for the exercise of their military instincts, to the strongest men in the tribes, who had heretofore been generally hunted down like wild beasts, and their country devastated with fire and sword, so that the inhabitants became reckless and plundered in their turn in the regular possessions of their lords.

Regular pay, discipline, and kind treatment soon had a wonderful effect, and ere long the wild country, most of which is in the hills and is inhabited by these tribesmen, became as safe as any part of Rajputana, and the people were especially devoted to the officers who had raised and subdued them.

The head-quarters of the different corps became centres from which civilization spread, and the pay which the sepoys drew led to increased prosperity and comfort in their homes, which has not been without good effect as regards the general health and improved power of resisting disease of the people.

In some cases there was difficulty at the first in inducing men to enlist, and it was thought that the local Nobles, as in the hilly tracts of Mewar near Kherwarra, the head-quarters of the Mewar Bhil Corps, might be of assistance; hence they received regular payment to bring in recruits. Very soon, however, a difficulty arose in the opposite direction; as, for example, in the same regiment, in which twenty-five years ago a hundred or more men were ready to serve as Umaidwars or expectants for nothing, or for an occasional rupee, on the works about the station in the hope of being ultimately enlisted. In some places this stage has passed, notably at Deoli, where the people have become settled cultivators, and so do not seek enlistment so freely.

The sepoys in all these regiments, when not on duty, were generally allowed to go to their homes, and the men often walked ten or more miles every morning and evening to stay with their wives and families. This freedom and irregularity had its effect on the sickness of the different regiments causing in particular an excessive number of cases of cut feet and ulcers, of guinea-worm from drinking, or perhaps wading in, bad water, and of malarial fever and anæmia from over-fatigue and exposure or under-feeding, which was due to the sepoy being accustomed to share his food with his wife and children.

The histories of the different regiments will be published separately; the following remarks will therefore be as brief as possible:

### ERINPURA IRREGULAR FORCE.

A cantonment was formed at Erinpura on the borders of Jodhpur and Sirohi, or the Jodhpur Legion, an irregular regiment which was employed before the events of 1857, when it joined the rebel Marwar Thakur or noble of Awah and afterwards moved off to Delhi. It was raised at Ajmer in 1835 and was moved to Erinpura in 1837. Its place was taken by the Erinpura Irregular Force, which was composed of cavalry and infantry, of whom the latter were generally Minas and Bhils from the neighbouring hills.

The Medical Officer had frequently to treat wounds amongst the men and the lawless inhabitants of the tract. The sick poor in the neighbourhood, having no other medical aid, were also afforded relief in the regimental hospital.

### MEWAR BHIL CORPS.

The Mewar Bhil Corps was raised in 1841 amongst the Bhils in the hilly tracts of Mewar, and had its head-quarters at Kherwarra, with a large and permanent detachment at Kotrah, 60 miles distant, on the road to Mount Abu, in the very wildest and most picturesque part of the country. This regiment was thoroughly loyal in 1857 and actually made it impossible for a cavalry detachment, which was then at Kherwarra, to be otherwise. The men have suffered much at times from malarious fevers and guinea-worm.

Wounds and ulceration of the feet are very prevalent. A paper on the vital statistics of the corps by Dr. (now Sir Joseph) Ewart attracted much attention some years ago. In this regiment Brahman drill instructors were first employed to teach the men. They had a considerable influence in Hinduising them. I have written more fully on the Bhils of this corps and district in the Journal of the Asiatic Society of Bengal.

### DEOLI IRREGULAR FORCE.

The Deoli Irregular Force had its head-quarters at Deoli on the triple border of Udaipur, Jaipur, and Ajmer. There are two squadrons of cavalry, besides the infantry which was recruited mainly from the Mina tribes. Deoli is also the seat of the Political Agency of Tonk and Haraoti. There is an Agency Hospital which is combined with a charitable dispensary, and both are under the supervision of the medical officer of the agency, who affords much help to the sick poor of the neighbourhood. The station is generally healthy, though the men were formerly subject to severe epidemics of cholera when the disease was in the neighbourhood, probably from defective sanitary arrangements because no latrines are in use in the regiment.

### MERWARA BATTALION.

Assistant-Surgeon, now Colonel, Newman prepared the first report on this regiment in 1871 for the Medical and Sanitary Report of the Native Army of Bengal.

He stated that the Battalion was first raised in 1822 in Merwara, a wild and hilly tract lying between the British District of Ajmer and the Rajput States of Mewar and Merwara. The Mers who had plundered the territories of the Rajput Chiefs were never subdued by them. This was done, however, by the British when they obtained possession of Ajmer, and since then the people have been loyal; and in the Mutiny the Mer Regiment did good service

when the Nasirabad garrison rebelled. After this they were formed into a Police corps, with their head-quarters at Beawar, but at the end of 1870 the Government of India re-organised the corps as a military body and stationed it at Ajmer. The medical history will be given. While the corps was at Beawar its influence was felt perhaps more than now amongst the wild tribes.

#### GENERAL HISTORY OF RAJPUTANA.

As this does not affect at the present moment directly the health of the people to any great extent, the reader may be referred to special works on the subject; for example, to Tod's Rajasthan, the Rajputana Gazetteer, my own work on the Rulers of India and Chiefs of Rajputana, and to pamphlets and many smaller works on the subject, of which a list will be given at the end of this work. He may also read the few notes on Ethnology in the next Chapter.

### CHAPTER IV.

#### POPULATION AND CENSUS STATISTICS.

According to the Rajputana Census Report for 1891, by Colonel H. B. Abbott, the total population amounts to 12,220,343, being rather more than 4 per cent. of the total of the Indian Empire, and about 18 per cent. of that of the Native States. It has about 3,420,000 fewer inhabitants than Hungary. The following table shews the population, number of dispensaries, and proportion of inhabitants treated in them of the principal States:—

Number.	State.	Population.	Number of Dis-pensaries.	Percentage of population treated.	Density of population per square mile.	House density.	Average number in a village.	Number of towns and villages.	Number of towns and villages per one hundred square miles.
1	2	3	4	5	6	7	8	9	10
1	Jalpur	2,832,276	25	6.51	181.8	7.28	410	5,784	37
2	Marwar	2,519,868	15	2.80	72.1	5.02	536	4,225	12
3	Mewar	1,863,126	13	7.76	146.1	4.60	272	5,869	46
4	Bikaner	831,955	13	8.30	35.9	6.13	364	1,968	8
5	Alwar	767,786	7	8.98	244.2	5.63	389	1,747	56
6	Bharatpur	640,303	14	16.48	323.1	7.32	382	1,359	69
7	Kotah	526,267	11	9.38	139.1	4.93	289	1,630	43
8	Jhalawar	343,601	8	15.21	126.2	5.63	213	1,457	54
9	Bundi	295,675	1	1.44	133.2	5.76	303	884	40
10	Dhyanpur	279,890	3	9.45	242.5	4.64	473	522	45
11	Banswara	211,611	2	10.97	168.7	4.44	151	1,345	69
12	Tonk in Rajputana	198,934	2	10.40	178.7	4.52	281	528	47
13	Sirohi	190,836	4	12.42	97.2	4.42	457	397	20
14	Dungarpur	165,400	1	1.36	114.3	4.34	182	507	35
15	Karauli	156,587	5	17.90	126	4.49	159	841	68
16	Kishangarh	125,516	1	3.41	146.3	6.57	437	230	27
17	Jaisalmer	115,701	1	3.85	7.2	4.57	266	397	2
18	Partabgarh	87,975	1	17.04	99.3	4.15	119	616	70
19	Shahpura	63,646	1	23.30	157	4.66	388	135	33
20	Lawa	3,360	...	...	176.8	6.81	420	8	42

The mean square mile density is 95·8. It varies from 323·1 in Bharatpur to 7·2 in Jaisalmer.

A return of infirmities is given showing the following facts :—

There were 2,024 males and 1,073 females, total 3,097 persons, of unsound mind in the Province.

There were 7,276 males and 21,003 females, total 38,279, who were blind.

There were 1,314 males and 394 females, total 1,708 persons, who were lepers.

Abstracts Nos. 35 and 37 are of special medical interest and are therefore given.

As regards occupations, 377 per 1,000 were engaged in agriculture, 160 were professionals, 77 were commercials, 312 artisans and village menials, 15 vagrants, minor artisans and performers, 'and 59 were not recorded.' Abstract 48 shows the proportion of each principal caste in every 1,000 inhabitants.

The total Hindu and Aryan population amounts also to 9,950,527, and there are 981,620 Musalmans.

As regards age and sex, the following table shows data of medical interest :—

STATEMENT No. 23.

Ratio per 10,000 of all ages—Hindus and Aryas.

Serial No.	TERRITORIAL UNIT.	TOTAL HINDU AND ARYA POPULA- TION.		TENDER AGE.				VIGOROUS.				DECLINING YEARS.	
				Infancy (0 to 4).		Childhood (5 to 14).		Youth (15 to 29).		Middle age (30 to 44).		45 and over.	
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1	Partabgarh . . .	26,137	24,072	1,081	1,143	2,341	2,132	2,911	2,781	2,560	2,523	1,104	1,419
2	Banswara . . .	32,204	31,480	1,156	1,206	2,827	2,266	2,759	2,688	2,324	2,467	931	1,373
3	Dungarpur . . .	43,808	43,209	1,161	1,195	2,986	2,450	2,838	2,667	2,149	2,382	865	1,303
4	Mewar . . .	696,362	631,447	1,394	1,451	2,779	2,457	2,535	2,485	2,191	2,251	1,099	1,354
5	Sirohi * . . .	87,098	76,528	1,565	1,725	2,835	2,425	2,364	2,280	2,072	2,172	1,162	1,394
	SOUTHERN DIVISION.	885,609	806,736	1,381	1,445	2,783	2,436	2,552	2,192	2,193	2,268	1,087	1,358
6	Marwar . . .	1,149,621	1,024,101	1,568	1,674	2,678	2,648	2,230	2,125	1,970	1,878	1,553	1,674
7	Jaisalmer . . .	45,265	39,475	1,453	1,510	2,955	2,647	2,484	2,223	1,768	2,008	1,339	1,610
8	Bikaner . . .	385,190	339,808	1,347	1,444	2,633	2,514	2,532	2,424	1,950	1,988	1,537	1,628
	WESTERN DIVISION.	1,580,076	1,403,384	1,511	1,614	2,675	2,617	2,311	2,200	1,959	1,902	1,544	1,662
9	Jaipur . . .	1,379,189	1,204,345	1,204	1,371	2,347	2,079	2,603	2,506	2,279	2,390	1,568	1,654
10	Kisangarh . . .	57,262	53,244	1,410	1,538	2,619	2,327	2,409	2,435	2,232	2,286	1,330	1,413
11	Lawa . . .	1,517	1,455	1,233	1,450	2,637	2,117	2,320	2,562	2,604	2,330	1,206	1,265
12	Alwar . . .	307,063	275,627	1,297	1,488	2,265	2,058	2,729	2,671	2,197	2,298	1,513	1,484
13	Bharatpur . . .	287,901	240,730	1,090	1,241	2,188	2,000	3,070	3,001	2,382	2,395	1,270	1,363
14	Dholpur . . .	146,556	113,231	1,369	1,448	2,209	2,084	2,661	2,670	2,224	2,271	1,537	1,527
15	Karauli . . .	79,748	67,533	1,242	1,393	2,504	2,358	2,530	2,465	2,302	2,386	1,332	1,399
16	Tonk (in Rajputana) . . .	85,182	77,613	1,229	1,411	2,582	2,342	2,482	2,502	2,411	2,288	1,295	1,457
17	Bundi . . .	145,657	130,398	1,159	1,418	2,611	2,395	1,653	2,306	2,549	2,466	1,342	1,414
18	Shahpura . . .	30,404	27,750	1,395	1,457	2,693	2,440	2,379	2,245	2,278	2,312	1,235	1,545
19	Kotah . . .	252,833	234,111	1,155	1,352	2,304	2,150	2,469	2,441	2,646	2,537	1,425	1,519
20	Jhalawar . . .	168,780	148,895	1,206	1,353	2,450	2,337	2,567	2,552	2,489	2,386	1,287	1,372
	EASTERN DIVISION.	2,942,092	2,574,932	1,212	1,381	2,354	2,132	2,626	2,558	2,338	2,386	1,470	1,543
	RAJPUTANA . . .	5,407,777	4,785,052	1,327	1,460	2,518	2,325	2,522	2,442	2,204	2,226	1,429	1,547

Abstract.

	SOUTHERN DIVISION.		WESTERN DIVISION.		EASTERN DIVISION.		RAJPUTANA.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Of tender age . . . . .	4,165	3,881	4,186	4,230	3,566	3,513	3,845	3,785
Vigorous life . . . . .	4,746	4,760	4,264	4,108	4,964	4,944	4,706	4,668
Declining years . . . . .	1,087	1,358	1,544	1,662	1,470	1,543	1,429	1,547

\* Grassias not included.

## ABSTRACT No. 35.

*Distributing age of 100,000 afflicted of each sex.*

INFIRMITY.	UNDER 20 YEARS.		20 TO 50 YEARS.		50 YEARS AND OVER.	
	Male.	Female.	Male.	Female.	Male.	Female.
Insane . . . . .	19	11	42	22	49	38
Blind . . . . .	108	90	215	222	1,207	1,785
Lepers . . . . .	4	2	29	2	63	19



## ABSTRACT No. 37.

*Proportion of the afflicted to 100,000 persons of the castes and tribes, and sexes of the castes and tribes in which the greater number of afflicted are found in the order of magnitude of those afflicted.*

Caste or Tribe.	INSANE.			Caste or Tribe.	BLIND.			Caste or Tribe.	LEPERS.			REMARKS.
	Both sexes.	Male.	Female.		Both sexes.	Male.	Female.		Both sexes.	Male.	Female.	
Mahajan*	45	61	29	Mahajan*	609	553	671	Hajam or Nai†	27	42	11	*Hindu and Jain.
Shekh	41	51	29	Shekh	462	408	576	Mahajan*	23	38	9	†Hindu Barber.
Kumhar	33	40	25	Brahman	416	352	486	Kumhar	22	30	13	
Brahman	31	38	22	Kumhar	351	318	387	Jat	16	23	7	
Bhil	28	39	17	Jat	306	243	380	Bhil	16	26	6	
Rajput	24	31	15	Rajput	284	231	355	Rajput	15	22	6	
Jat	23	27	19	Chamar	262	229	302	Shekh	15	22	6	
Mina	19	22	16	Bhil	220	227	247	Mali	14	19	8	
Chamar	18	21	14	Mina	216	203	237	Brahman	13	22	5	
Gujar	16	21	9	Gujar	202	181	227	Chamar	12	18	5	
								Gujar	8	10	5	
								Mina	8	11	4	

## ABSTRACT No. 48.

*Statement showing the principal castes in numerical order and the proportion they bear to the total population of Rajputana.*

Serial No.	Castes.	Total number.	Ratio to 1,000 inhabitants.
1	Brahman . . . . .	1,135,397	93
2	Jat . . . . .	1,054,200	86
3	Mahajan [(shown Hindu and Jain) shown separately in Nos. 9 and 10] . . .	869,599	73
4	Chamar . . . . .	846,616	71
5	Rajput . . . . .	748,868	63
6	Bhil . . . . .	743,700	62
7	Gujar . . . . .	572,569	48
8	Mina . . . . .	536,917	45
9	Mahajan (Hindu) } Taken together in No. 3 . . . . . }	468,087	39
10	Mahajan (Jain) }	401,512	34
11	Mali (Gardeners) . . . . .	358,234	30
12	Kumhar (Potters) . . . . .	297,285	25
13	Balai . . . . .	282,491	24
14	Rahari . . . . .	211,808	18
15	Khatl (Carpenters) . . . . .	207,840	17
16	Bhami . . . . .	207,152	17
17	Ahir (Shepherds) . . . . .	156,464	13
18	Hajjam (Barbers) . . . . .	149,672	13
19	Meo . . . . .	145,184	12
20	Sunar (Gold and Silver smiths) . . . . .	81,928	7
21	Mehtar (Sweepers) . . . . .	81,096	7
22	Charan (Bairds) . . . . .	48,430	4
23	Moghia . . . . .	35,073	3
24	Naga (Military monks) . . . . .	16,016	1
25	Bagri . . . . .	11,353	1
26	Kanjar . . . . .	9,328	...

## ETHNOLOGY.

As regards the ethnology, I cannot do better, perhaps, than quote from my own work, "The Rulers of India and the Chiefs of Rajputana", which was published in 1897. I therefore give the following extracts:—

"In ancient times India was inhabited by tribes, who are known as Non-Aryan or Aborigines, to distinguish them from the Aryans, or those of noble race who entered the Peninsula by the North-West Passes and struggled with the former, until at last they became conquerors of the greater portion of the land. The latter were chiefly Brahmans or the priestly class, Rajputs or warriors, and Vaishyas or agriculturists, now for the most part merchants and bankers.

"In Rajputana the Bhils, who inhabit the hilly tracts of Mewar, Dungarpur and the south-west corner of the Province, represent generally the oldest inhabitants.

"The Aryan invaders, according to some authorities, found that other races had migrated from Central Asia before them. These were Tartars or Scythians, but, whether this be true or not, it is certain that hordes of this race poured down into India from about the second century before, to the fifth century after, Christ, and established kingdoms in the north. From this stock are said to have been derived the Jats of the Pnnjab and of Rajputana, as well as certain Rajput tribes. Tod indeed considered that most of the Rajputs had such an origin or had come into India at a later period than the first Aryan colonists. At the present day, because modern Hindu opinion places the Rajput at the top of the scale of power and aristocratic blood, the ruling Jats in Rajputana affect a Rajput descent, but ethnologists will hardly admit the validity of their claim. It is much more probable that many of the cultivating classes and of the lower classes are descended from these invaders, or from admixture with the older Aborigines, on the one hand, and the Aryans on the other. A Jewish origin has also been attributed to the Rajputs, and the similarity of many of their customs, and their striking resemblance of features to that ancient people, might perhaps favour the view.

"What would appear to be a still wilder theory is that advanced by the late Surgeon-Major-General Bellew, that the Pushtu-speaking clans in the Punjab, some of them Jats, represent a colony which was deported by Alexander the Great from Asia Minor, and that their language is simply Greek worn down to its present form in the course of ages. It would be indeed strange if the Bharatpur and Dholpur Chiefs were descended from an Asia Minor tribe who spoke a dialect of Greek.

"Although in theory the castes and races of India ought to have been kept carefully distinct from each other and to have remained pure, in practice it is not so. As regards the lower classes, the fact that slave girls have been at the disposal of the master would alone account for such admixture; but the natural desire of every Hindu to leave a son to inherit property and to perform his funeral rites, and the interest of childless widows and clansmen, who wish to preserve their offices, have sometimes led to substitution in royal (and I might add other) houses.

"History is full of such instances; but on the whole, though a particular individual may not always be of the right strain, the custom of adoption, in case of failure of direct heirs, often corrects such mistakes and ensures a selection from the old stocks. The Mohamadan invasions of India have also left their mark, and as regards Rajputana, although the Rajput Chiefs have not intermingled with them beyond giving their daughters in marriage, in some well known cases, to the Moghal Emperors, whole families have accepted the Mohamadan religion; as, for example, the Nawabs of Pahasu, of which the late Sir Faiz Ali Khan, Superintendent of the Kotah State and formerly Minister of Jaipur, was the head, his ancestors being Bargujar Rajputs of Jaipur. Others, again, have been markedly influenced by contact with that faith, as, for example, the Shekhawat clan of Northern Jaipur.

"All over the Province there are in more or less numbers, many Musalmans, numbering in all Rajputana 525,839 out of a total population of 12,220,345. Some of them are, no doubt, of Central Asian origin of comparative purity; but the majority are, in all probability, of mixed race or of pure Indian descent, whose ancestors have been converted. Last of all, there is the Nawab of Tonk, whose ancestor, Amir Khan, founded the State of Tonk, in the heart of Rajputana and Central India, as recently as the beginning of the present century (the Nawab is descended from Tolair Khan of the Bonair tribe, which opposed the British so strongly in the Ambeyla Campaign).

"Some Rajputs are also severed from the main stock by having adopted the Jain faith. The Oswals of Jodhpur, who are said to have been Rathor Rajputs, afford an illustration. Some writers have denied that Hinduism is a Missionary religion; but since many members of the lower tribes, such as the Bhils have been absorbed into it their opinion may be questioned. On the other hand, it has lost (as has been already stated) many more of its votaries who have become Musalmans."

Abstract No. 48 from the Census tables shows the proportion of the principal castes which are found in Rajputana. The largest proportion are Brahmans, or 93 per thousand. Mahajans (including Jains) amount to 73 and Rajputs to 63 per thousand, these most Aryan castes thus accounting for 22·7 per cent. of the whole. The purest Aborigines, *vis.*, the Bhils, form 6·2 per cent., and the Minas, or inhabitants of certain parts of Rajputana prior to the Rajputs, account for 4·5 per cent.

Some years ago I published some comparative measurements of certain Rajputana races, particularly of the Bhils. They will be found in the proceedings of the Bengal Asiatic Society, 1875. I do not republish them, because I think they should be repeated on a larger scale. The general results seemed to show a considerable difference between the Bhils and the other races, but this may be partly due to residence in the hills and to their manner of life, and, as regards disease, I think these points are of more importance in the country than distinctions of race. The differences of religion, of food, of custom, of home and occupation are perhaps of still greater importance. Whatever may have been the original races of Rajputana, they have been so much influenced by each other, especially in recent times, as to make it tolerably certain that ethnological considerations have now very little to do *per se* with liability to any particular diseases or to the power of resisting or of spreading them.

## CHAPTER V.

### MEDICAL HISTORY OF RAJPUTANA.

The treatment of the sick in Jaipur under the indigenous systems is described at length in my Medico-Topographical History of that State. It relates to the whole of Rajputana and may be repeated here. It applies to the past as much as to the present. There were:—

- (1) *Baids* (Vaids), or Hindu physicians of whom very few are learned. In fact, most of them know little more than a few Sanskrit verses, or *shlokas*, which they recite as guides to the selection of particular remedies, when they think they are dealing with the disease to which these texts refer. State *baids* are still subsidized in many villages.
- (2) Jain priests or Jatis, and other priests. These depend chiefly upon the Amritsagar, an abridgment of Susruta, Charaka, and other well known Sanskrit authors, which was drawn up in 1779-1803 by order of Maharaja Sawai Partap Singh, one of the Chiefs of Jaipur. I published a series of papers, which were translations from this work, some years ago in the *Indian Medical Gazette*.
- (3) *Hakims*, or Mohamadan physicians, who practise the Yunani or Greek (more correctly Arabian or humoural) system of medicine. Very few of them are educated. One or two of them are still attached to each of the regiments in Jaipur and other States.

- (4) *Jarraks*, or barber surgeons, a very poor and ignorant set of men, who bleed, draw teeth, apply the actual cautery, and bandage limbs in cases of fracture. They have great influence still, especially with the women.
- (5) *Sathiyas*, or couchers, who practise reclinacion of the crystalline lens in cases of cataract.
- (6) *Bairagis*, or Hindu, and *fakirs*, or Musalman, devotees: wise women; clever persons who drive out diseases by the aid of the *jharu* or broom, and charms.
- (7) *Pansaris*, or druggists, at whose shops *baidis* are accustomed to sit and practise.

There are no regulations for the sale of poisons, hence there are great risks of accidents. Something ought to be done in this matter. Besides all these, the people resort to temples, make pilgrimages, and listen to any one (especially to a priest) who has a word to say on the subject of their diseases, and adopt the advice of any plausible individual. At the present moment it is the fashion for Hindu mothers to take their children to an old *fakir* who has set up a hut two or three miles from the town of Jaipur. Some time ago a sweeper used to sit outside the jail gates and pretend to drive out diseases with his broom. Hindus mix up religion so much with every act, particularly where eating and drinking are concerned, that they fear to use strange, and especially European drugs, which they think may contaminate them. Of course, great care is taken in our hospitals to meet this difficulty, but no doubt it is a cause of the fewer attendance of people of this class than of Mohamadans.

All the above-named practitioners still exist, but have less power and practice than formerly, especially in the case of Mohamadans. The great evil is that no one is satisfied to persevere long in any course of treatment. It ought to be added here that immense efforts are now made by both European and Indian dealers and inventors to sell quack and patent medicines of all kinds. The Hindu quack, who sells oils which are said to be prepared according to the Ayurveda or Medical Scripture, is quite as energetic as the European who pushes his Elixir Vitæ or Cancer Drops. Boys may be seen at the band-stand in Jaipur distributing stories in Hindi and Urdu, the aim of which is to recount the virtues of Mother Seigel's Syrup or some such drug.

Many of the vernacular pamphlets, which are now circulated through the post by vendors of so-called Ayurvedic drugs are quite as disgusting as similar publications that at one time were such a nuisance in England, and their distribution ought certainly to be prohibited by legislation.

The late Sir W. Moore and I some years ago met some travelling quacks who cut for stone on the grip with most barbarous instruments. Peasants still trust greatly to simple charms and opium.

There is a Sanskrit College at Jaipur which has a large class of young men who are being taught the Vaidic system. The following is the official syllabus of education which is

prescribed for youths who attend at the College. Some of the students come from distant parts of India :—

## AUTHORS.

## WORKS.

(1) *The Upadhyā (Proficiency) Examination.*

Chakradatta . . .	Chikitsasarasangraha, a modern compilation of Hindu medicine.
Madhava . . .	Nidana, the great work on the diagnosis of disease.
Ramacharana . . .	Narivijnan, a treatise on feeling the pulse.
Bhavamisra . . .	Bhavaprakasha, a later compilation of medicine, to the end of chapter on Dravyagun.
Gobinda Sen . . .	Paribhashayradipa, a book on the Hindu materia medica.
Salinath . . .	Rasamanjari, an elementary work on chemistry.

(2) *Sastri (Honors) Examination.*

Vagbhotta . . .	Ashtangarhidaya.
Charaka . . .	Charaka Sanhita, Kalpasthana, and Chikitesasthana.
Susrut . . .	Susrut Sanhita, Sharirasthan.
Gopal Krishna . . .	Rasendrasarasangraha.

(3) *The Acharya (Doctor's) Examination.*

Charaka . . .	Charaka Sanhita, a renowned system of Sanskrit medicine.
Susrut . . .	Susrut Sanhita, the great work on anatomy and medicine.
Vagbhata . . .	Ashtangrhidaya, the best of the Sanskrit medical texts, being a collection of texts on the Astronomy, Surgery, Chemistry, Materia Medica, Physiology, and Midwifery, of the ancient Hindus.
Ramachandra . . .	Rasendra Chintamani, the best work on chemical preparations.

The head of the institution is anxious to supplement this with the study of simple works on modern anatomy and physiology, and perhaps chemistry, but it is like putting new wine into old bottles, for it is difficult to see how men, whose thoughts dwell in a rude past age and who have no knowledge of modern progress of any kind, can understand our scientific works.

In simple cases of fever, diarrhœa, and dysentery, domestic remedies have no doubt been useful, but when the case was a severe one and the whole of the powerful artillery of the *baid* or *hakim* was called into play, the danger began. The results of surgical malpraxis are, however, most apparent in such cases as badly-united fractures, unset dislocations, mismanaged cases of eye-disease, and cauterization of tumours. The mortality amongst infants was, and is, terrible, and it is only the most fit who survive. Obstetrics and diseases of women were, and for the most part are, entirely in the hands of *dhais* or midwives of the lowest classes, who can neither read nor write, who in difficult cases try to force out the child by sitting on, or even striking the abdomen of the mother, or who cut off the arm or leg in presentations of these parts, and are too frequently most skilled as abortionists. The vested interests of such persons, the fear of religious contamination, and the dread of interference, of which they do not know the nature, keep many back, but progress is being made in educating them and in providing medical aid for women. It is a case as much for breaking down prejudice as for treatment behind the *pardah*. The universal belief that many diseases are due to evil done in a preceding birth, either by the sufferer or his parents, places many beyond the relief of medicines and puts them in the power of the priest or *baid*,

and as it is only by a process of exclusion, *viz.*, the non-success of their remedies, that it is proved that religious failure is not the cause, the true physician has little chance of being called in in time, or of succeeding when he is summoned.

Into the midst of all this came European medical officers, who do not appear to have been able to do very much for some years for the general population; not indeed until some chance success, surgical perhaps, induced an advanced Chief to establish a dispensary. The Agency hospitals appear to have concerned themselves mainly with the treatment of sick officials; but no returns were sent in from them, except in the case of troops, and, according to a former Superintendent of the dispensary at Abu, very little help of that kind was given, as he writes that there had really never been anything to report.

In connection with the regiments in Rajputana, there were, however, from time to time surgeons who made careful studies of the diseases and climatic conditions of Rajputana, as, for example, Drs. Bowhill, Bow, and Ewart (now Sir Joseph Ewart) at Kherwarra.

The Civil Surgeon of Ajmer had been anxious to start a dispensary in that place, but had met with no encouragement.

Nasirabad was the first place at which there was a regular cantonment in Rajputana, and the medical officers who were stationed there contributed something towards our knowledge of the health of the country, but the first work of any importance of a purely professional character was a medico-topographical account of Ajmer, which was written by Dr. Irvine, the Civil Surgeon.

The Civil Surgeons at Ajmer were in medical charge of the Rajputana Agency and went into camp with the Agent to the Governor-General in the cold season. A special medical officer was deputed to perform the duties at headquarters during their absence by the General who commanded the Rajputana Field Force at Nasirabad.

The following extracts from Dr. Irvine's work on the topography of Ajmer, now rare, are interesting, though they are not all medical in character:—

*Page 112.*—The Jail hospital is hardly worthy of the name, being an arched stone shed in one of the angles, small but sufficient for the average number of sick. Protection from the sun and rain is afforded, but the ventilation is insufficient. The greatest advantage of this hospital is that, being situated without the quadrangle within which the prisoners are chained and guarded at night, and owing to there being no spare *burkundases*, the sick, however ill they may be, or however infectious their complaints, are obliged to be removed within the quadrangle and placed amongst the healthy prisoners,—an arrangement mutually inconvenient and often very cruel.

*Page 102.*—Necessity makes the agriculturist work hard; but the whole people, and above all the Rajputs, are yet by disposition idly inclined, and nowhere is the "*dolce far niente*" principle more highly appreciated.

The general protection afforded causes the generality to acknowledge the benefit of the administration of our laws; but among the Rajputs, Mairs and Minas the recollection of their predatory habits still exists, and no doubt many would be glad again to abandon their sterile fields, and resort to highway robbery, as one successful "raid" might supply them with food for a year, and they would willingly run the risk of being occasionally robbed in return as often happened in former times. Fear of punishment

alone makes them respect the British laws of *meum* and *tuum*. In reality they are still quite of Rob Roy's opinion. However, as it is very much to be doubted whether the general protection of property, even in the most civilized states, is not infinitely more dependent on fear of the penalties of the laws than on innate principles of honesty or virtue resulting from education in the great mass of people, the Rajputs and Minas are not so much to be condemned as the insufficient power of the laws to restrain them.

In time industry might become loved for herself and the wealth she creates.

I have frequently heard lamented what is called the depressed state of the Rajput, his sword being useless, and his material character depreciated; but to convert his sword into a ploughshare is ultimately to benefit the body at large, and to make the Rajput a more useful individual, though a long time will lapse ere some of the tribes will become active and willing tillers of the ground.

Let anyone reflect on the immense improvement of the highlands of Scotland from what they were before civilization was almost forced upon them. The measures to produce the effect were no doubt severe and caused great discontent, but the result is excellent and favourably estimated by almost all the Highlanders themselves.

A similar result may be hoped for in the district of Ajmer, especially under vigilant superintendence, and on making the assessment proportionate to the crops, to be levied by trustworthy agents.

The warlike character of the Rajputs has, I think, been very much overrated. There appears to be very little chivalrous feeling in his breast. By nature Rajputs are generally powerful, muscular men, active by habit, and practising gymnastics (though, when not excited, inclined to indolence in a high degree); those who possess horses are generally good horsemen. Some are by constant practice dexterous in the use of lance or sword, and individually must be often superior to one of an enemy trained to act in combination according to a rigid system of discipline. But amongst a large body of Rajput horse, only a few would be found such superior men at arms. The Rajputs do not possess the cool deliberate courage, ready to dare any danger, and requiring no artificial excitement. According to their own accounts, even in their former attacks on caravans or towns, surprise was their object, and, if successful, they were equally cruel and rapacious, showing no mercy to their captives, and if they met with much resistance, became as cowardly as they had before been violent and resorted to flight; fighting was their object, and in all their single combats and assaults they resorted to the excitement of opium before commencing battle. Their own bards describe the eyes of the heroes as being red from opium. Among their rajas, the treacherous murders of each other on record were numerous and long premeditated, as, for instance, the murder of the Rana of Oodeypore near Kotah. In the defence of towns or forts by Rajputs the occasional performance of the ceremony of *johur* has been lauded as heroic though terrible; this has, however, been most falsely estimated. The immolation was never performed with the stern philosophy of a Spartan. On perceiving that they could hold out no longer, the Rajputs determined on the death of their women and children rather than allow them to fall into the hands of their enemy. Savage jealousy and opium together excited them to perform the *johur*, and after the murder of all they held dear the Rajput men then taking more opium and clothed in yellow garments, rushed unreflectingly on the foe, to receive their deaths, dealing at the same time as many as they could to the enemy. Acting in this way was surely not indicative of a pure and noble courage. What can be said of a man to whom a high state of intoxication is requisite to make him fight; or, supposing the words "gin" or "brandy" to be substituted for "opium," then how would the Rajputs' performance of *johur* be estimated?

*Hospitals.*—The small stone shed used as a Jail hospital has been alluded to; the only other is the magazine hospital, appropriated particularly to the magazine, but also used for the general reception of cases.

This hospital is situated nearly opposite to the main entrance of the magazine, on the opposite side of the public road, in the centre of a piece of ground about eighty yards square, not protected from the road by any wall or screen.



The hospital is a stone-vaulted building, containing one central ward, thirty feet long by twenty broad, and has the usual verandah space around, divided by the corners into four compartments, in the outer wall of each of which there is an unglazed door.

There is a small room in one verandah for the reception of medicines, etc.

Rats burrow through the pucca floor of the hospital, and the medicines, etc., can never be properly preserved so long as this is the case; the nature of the shelves put up is not efficient to protect phials, etc., placed upon them, but these defects might be easily remedied.

The two small windows in the surgery and two of the doors should be glazed and well fitted to their frames.

The space around the hospital should be inclosed by a low wall to prevent the passage across of carts, cattle or noisy people, now a frequent nuisance.

This hospital is sufficient in size for the healthy climate of Ajmer, and is in a well-drained, airy situation.

On my first arrival at Ajmer I proposed the establishment of a hospital for the poor, which I, of course, volunteered to superintend, but the proposal was not encouraged.

Notwithstanding the salubrity of the climate, the medical duties are sometimes severe, owing to the great distance apart of the officers' houses, and the number of European writers, and warrant officers and their families; the total under medical charge is upwards of eight hundred.

While at Ajmer the medical officer performs all the agency, civil, magazine, and guard medical duties. When the Agent to the Governor General marches, the medical officer usually accompanies him, and the Ajmer charge is made over temporarily to some other medical officer, who receives one hundred rupees per mensem, on the agreement of visiting Ajmer at least once a week (from Nasirabad).

As Dr. Hennen remarked, the generality of diseases have not a natural tendency to terminate in death; and this is fully exemplified at Ajmer, where by far the greatest number of cases among the poorer natives recover spontaneously.

The practice of medicine among the natives is in the hands of Mohamadan *hakims* and Hindu *baidis*, *naies*, or barbers, and *jetties*.\* Their knowledge appears to be at a very low ebb; their chief reliance is upon charms and signs. The materials of their prescriptions, are often the most incongruous and laughable even to themselves, when they are asked on what principles they prescribe, and methods of action of the various substances.

Their practice I believe is generally innocent; with the exception of that of the *jetties*, who are superstitiously respected by all of the Jain faith, and as no enquiries would be made by natives, they have great facilities for doing harm.

In simple external complaints, with the exception of eye-diseases, the common practice may be beneficial; but it appears evident from the usual inefficiency of the practice that those who escape are carried through only by strength of constitution.

The state of surgery is sufficiently good in the treatment of incised wounds, union by the first intention being almost always effected, the native constitution also greatly adding in this. The edges of the wound are generally brought accurately together, and the dried skin of the *sambur* is ground very fine with water, and applied in a paste over the edges; this speedily dries and keeps the parts in close contact, the gelatinous nature of the application also probably tending to promote immediate union.

\* A Jati is a Jain priest.

Operations for cataract are successfully performed at times by travelling oculists, whose employment is hereditary. They know nothing of anatomy whatever, and operate quite fearlessly. Of the greater operations of surgery, lithotomy is sometimes performed; the lithotomist is as ignorant as the oculist in regard to anatomy, yet he operates quite fearlessly, generally with bungling violence, and sometimes succeeds.

If the European surgeon, with his science, only possessed the self-sufficiency and indifference of these native operators, his success would be insured.

In regard to the materia medica, many productions now imported from other places may be found indigenous; but the indolence of the inhabitants, and their propensity to opium and other intoxicating drugs, has almost entirely prevented them making any researches on such subjects.

Almost without exception the wealthy inhabitants of Ajmer, from early dissipation, become impotent or in a state tending that way, though in full manhood as to years; and as such people will pay well for relief, a great number of substances are employed in the most preposterous manner with the view of benefitting in that way; hence a great part of the Ajmer pharmacopœia consists of substances employed from their supposed aphrodisiac virtues. Nearly all the articles of real efficacy used by the natives are found in our own pharmacopœia, such as gamboge, impure calomel, pure corrosive sublimate, arsenious acid, senna, cassia fistula, sulphur, mercury, opium, musk, castor, croton tiglium, rhubarb, turbeth root, jalap (from *Mirabilis Jalapoe*) from their supposed aphrodisiac virtues.

On making enquiry, regarding the greatest number of articles, the reply of the *hakims* and *pansaris* is that the efficacy is not in the substance itself but in the combination, and that a person may take a chittak of it without injury.

He then gives a list of about 300 drugs which the *pansaris* or native druggists selected with him as being the only ones out of about 3,000 which were kept in the shops to which they attached importance. At the end he remarks as follows:—

*Pages 153 and 154.*—From this selection, a tolerably clear impression of the vile depressed state of native medicine may be ascertained, the great enquiry among the medicines being still for objects to cause an increase of salacity.

All the remedies of any importance are still retained, or have been long rejected from our pharmacopœias.

Many Europeans in India are still of opinion that native *hakims* and *baidis* are often superior in knowledge to, or at any rate are in possession of secrets unknown to, regular practitioners. I will only instance one among the articles of the native materia medica than which none is more vaunted, the *har* or *harra*, considered to possess wonderful general deobstruent and purgative qualities, etc., etc., while those who thus belaud it are apparently not aware that this is the Chebulic myrobalan (*Terminalia chebulia*) of our pharmacopœias of the sixteenth century and long since deservedly neglected.

I have known the opinion to which I allude to have been carried so far as to cause an officer to allow, if not to encourage, the men under his command to seek medical aid from the native *hakims* and *baidis* of the neighbouring town—a course which can only throw undeserved discredit on our profession and serve to foster the native prejudices against us.\*

I trust that if any such gentleman honors by a casual perusal this digest of native practice, which the *hakims* and *baidis* themselves will allow to be learned in their ideas, he may have his prejudices removed.

No instances of excessive longevity came under my observation; but from enquiry I am of opinion that a number of the inhabitants attain a good old age. Opium eating, and the use of bhang and liquors, unless when carried to great excess, do not seem to shorten life. The small-pox has been depressing longevity by carrying off thousands, both in infancy and from eight to twenty years of age. To this latter cause the small population may be mainly attributed.

\* This has occurred within the last few years in the same place.

*Statistics of Charitable Medical Relief in the different States*

(Taken from the report of 1896, with

No.	STATE.	Population. Census, 1891.	Area in square miles.	Number of patients treated.	All surgical operations.*	DAILY
						Average number.
1	Ajmer-Merwara . . . .	542,358	2,710	57,569	3,242	387'99
2	Jaipur . . . . .	3,832,276	15,579	182,832	13,228	2,286'64
3	Jodhpur . . . . .	2,519,868	34,963	84,093	5,975	814'82
4	Sirohi and Abu . . . .	186,025	1,964	29,690	1,533	191'55
5	Jaisalmer . . . . .	115,701	16,062	4,482	255	51'67
6	Bikaner . . . . .	831,955	23,173	71,578	5,514	794'12
7	Alwar . . . . .	767,786	3,144	68,295	5,044	573'57
8	Bharatpur . . . . .	640,303	1,982	98,886	874	745'68
9	Dholpur . . . . .	279,890	1,154	24,696	1,221	186'75
10	Karauli . . . . .	156,587	1,242	27,515	2,758	322'27
11	Kotah . . . . .	526,267	3,784	48,974	2,916	436'15
12	Jhalawar . . . . .	343,601	2,722	48,337	2,587	354'36
13	Mewar and Kherwarra . .	1,728,547	12,753	124,899	6,144	890'66
14	Partabgarh . . . . .	87,975	886	11,413	860	112'16
15	Banswara and Kushalgar . .	186,043	1,946	21,751	429	153'55
16	Dungarpur . . . . .	94,488	1,447	3,458	49	58'73
17	Kishangarh . . . . .	125,516	858	6,698	444	54'71
18	Bundi . . . . .	295,675	2,220	4,410	4	65'37
19	Tonk . . . . .	198,934	1,113	20,303	1,898	162'34
20	Shahpura . . . . .	63,646	405	14,062	955	73'90
21	Deoli . . . . .	included	included	6,811	418	49'58
	TOTAL . . . . .	12,762,701	130,107	960,767	...	8,378'58
22	Agency Hospitals . . . .	...	...	15,359	559	143'93
23	Salt Dispensaries . . . .	...	...	8,137	474	161'10
	TOTAL . . . . .	12,762,701	130,107	984,263	62,375	305'03
24	Railway Dispensaries . . .	...	...	23,092	...	...
25	Mission Dispensaries and Hos- pitals . . . . .	...	...	60,232	...	...
	GRAND TOTAL . . . . .	12,762,701	130,107	1,067,587	62,375	9,071'60

\* In 1896 the major operations could not  
 † In Nos. 4, 13 and 15, the percentages of sex are for Sirohi, Mewar and Banswara only. For Abu they are 56'9,

*of Rajputana and Ajmer-Merwara during the year 1896.*

additions and modifications.)

ATTENDANCE.			Number of dis- pensaries.	Number of dis- pensary towns.	ONE DISPENSARY.		ONE DISPENSARY. TOWN.		Percentage of po- pulation treated.	COST OF MEDICAL RELIEF.	
RATIO PER CENT.†					To popula- tion.	To area.	To popula- tion.	To area.		Paid by Govern- ment.	Paid by Native States.
Men.	Women.	Child- ren.								<i>R</i>	<i>R</i>
55'96	16'80	27'24	7	7	77,479	387	77,479	387	10'61	5,558	5,887
53'84	20'73	25'37	25	22	113,291	623	128,739	708	6'46	...	59,878
50'81	21'65	27'54	17	14	148,227	2,056	179,990	2,497	3'34	...	28,472
57'09	19'82	23'01	4	2	46,506	491	93,012	982	15'96	1,160	2,720
56'90	17'17	25'33	1	1	115,701	16,062	115,701	16,062	3'87	...	2,067
60'23	19'08	20'69	14	12	59,403	1,655	69,329	1,931	8'60	...	82,625
45'15	25'33	29'53	7	6	109,683	449	127,964	524	8'90	...	17,194
54'30	20'51	25'19	14	12	45,735	141	53,358	165	15'44	...	16,837
49'07	17'40	33'55	3	3	93,296	384	93,296	384	8'82	...	5,169
38'53	25'69	35'78	4	4	39,146	310	39,146	310	17'57	...	4,394
55'45	21'07	23'48	11	10	47,842	344	52,626	378	9'31	...	18,952
58'45	17'63	23'92	8	8	42,950	340	42,950	340	14'07	...	14,154
59'30	16'39	24'31	13	12	132,965	981	144,045	1,063	7'22	...	27,147
39'74	23'31	36'95	1	1	87,975	686	87,975	886	12'97	...	1,165
38'84	23'91	37'25	2	2	93,021	973	93,021	973	11'69	...	1,853
51'61	19'34	29'05	1	1	94,448	1,447	93,448	1,447	3'51	...	1,408
54'85	17'26	27'89	1	1	125,516	858	125,516	858	5'34	...	1,470
55'68	16'63	27'69	5 { 1 2 1 1	1 1 1 1	111,651	747	139,563	934	8'17	...	1,767
38'17	29'71	32'12									8,327
66'71	13'89	19'40									1,472
56'43	21'24	22'33									1,095
53'26	20'55	26'19	138	122	92,483	942	104,613	1,066	7'53	6,718	3,04,053
70'48	12'52	17'00	7	...	...	...	...	...	...	3,597	2,189
59'74	17'24	23'02	4	...	...	...	...	...	...	3,766	1,606
64'81	20'21	20'18	149	122	85,655		104,613	1,066	7'71	14,081	3,07,848
...	...	...	6	...	...	...		...	...	...	...
...	...	...	5	...	...	...		...	...	...	...
53'76	20'21	20'18	160	122	79,767	81		76	8'38	14,081	3,07,848

be separated from the grand total as the classification was changed.

13'65, and 29'45. For Kherwarra 54'35, 20'68, and 24'97, and for Kushalgarh 53'93, 26'53, and 20'34, respectively.

## CHAPTER VI.

### HISTORY OF THE DISPENSARIES IN RAJPUTANA AND SUMMARY OF THE ANNUAL MEDICAL REPORTS.

The earliest report on the dispensaries of Native States is in the form of "a memorandum on the present condition and the last year's progress of the Rajah's dispensaries in Rajputana, dated July 15th, 1856, by H. Ebdon, M.D., Rajputana Agency Surgeon." Dr. Ebdon remarks that in the year that terminated on 30th June 1855, 33,500 pauper sick were received in the Rajah's dispensaries and in the next year 58,942. In 1855-56, 1,740 persons had been vaccinated and 61 blind persons had been restored to sight, 20 calculi had been removed, and many other serious surgical operations had been performed.

The Agency Hospital was, as a rule, at Abu for eight months in the year and afforded relief to, on an average, 200 persons in a month, but on the march, in the cold season, the attendance rose to as many as 1,200. One thousand persons were usually vaccinated, and treatises and notices, explaining the benefits of vaccination, were assiduously distributed in the towns, villages and districts. At Bharatpur a large hospital had just been completed outside the city, but it was proposed to keep up the city dispensary as well because the daily attendance there was as high as 120.

At Dungarpur, where there was a minor Chief, there was a dispensary with a monthly attendance of 150. It was kindly managed and supervised by Dr. Bow, of Kherwarra, and returns were sent in to the office of the Rajputana Agency.

For many years this institution was closed and was only re-opened in 1895.

At Jhalrapatan there was a good native doctor, a skilful operator, a favourite of the Prince, but he was "rather too fond of Arabic views of medicine."

At Jaipur, the dispensary house, Dr. Ebdon thought, was as large and as well arranged a place as any in India, and the Rajah supported it in the most liberal manner. The daily attendance under Dr. Burr was about 50.

At Jodhpur, Mr. J. Collins, a Bombay apothecary, gave as much time as the personal demands of the Chief upon his services would admit of to the poor, of whom 1,000 a month attended the dispensary, which was well supported.

At Karauli, there was an intelligent and zealous native doctor who had an attendance of 450 per mensem. He operated and was a great favourite with the young Rajah, but Dr. Ebdon regretted that neither he nor the doctor at Jhalrapatan had any European officer to supervise them. As regards Karauli, there was even in 1898 no direct superintendence.

At Kotah, there was a large and airy dispensary with a Christian native doctor. The monthly attendance was about 400, but the surgical operations were few and trivial.

Great efforts were being made to establish dispensaries at Bikaner, Bundi and Udaipur. The Chiefs were not backward, but there were difficulties in obtaining efficient native doctors and in providing for their proper supervision.

The vaccination was very unsatisfactory as it was done on the march, and it was not known whether the operation was successful or not. On the whole, it probably did as much harm as good, as failures naturally led to loss of confidence. It was not much practised by any but the Agency Surgeon, who did three-fourths of the operations.

A thousand vaccinations, however, were performed at Kotah and Jhalawar.

Dr. Ebdon remarked that in Central India all the dispensaries were controlled from Indore, but in Rajputana the institutions were under the care and patronage of the Raja, who merely paid the staff and provided the drugs under our advice, an arrangement which he held to be the better.

The whole eight dispensaries relieved 4,900 sick during each month at a cost of Rs. 1,400, of which sum the two wealthy States of Jaipur and Jodhpur paid more than half. The relief of the sick poor from the Agency Hospital cost only about Rs. 20 a month more than if no such persons had been attended. Indigenous drugs were largely used, and Dr. Ebdon adds "our faces are strenuously set against any use of European medicines that are not absolutely required." More modern experience would appear to indicate that this was probably the principal reason why progress was slow. He hoped to get a good supply of youths to undergo training in a three years' course at the newly-opened medical school at Agra. Judging from an observation in an official letter to the effect that it was hoped that Dr..... would visit the city dispensary at his station at least once a week; it was not expected that the European Surgeons would do much professional work in the institutions. Fortunately, some of the officers had a higher sense of duty and a keener interest in their profession, but on the whole this feeling stood in the way of rapid progress. It is stated that the sick of the Jails in the Native States were not numerous, although the prisoners received no great care when ill. The Chiefs in the larger States had accepted the Governor General's suggestions for the reform of their jails in good spirit, especially as regards discipline and classification.

The views of Dr. Ebdon on the health of the prisons were certainly of much too optimistic a character. He observed that leprosy was rife, that mania was not very common, and that mental disease rarely presented itself at the dispensaries, although there were in some States *quasi*-asylums or *pagalkhanas*. Some of these awful institutions have survived to the present day, but on the whole there have been few dangerous lunatics, such as could not be kept in their homes by their friends, who, as a rule, treat them humanely, a mad man being generally regarded as one who is under heavenly protection.

Persons who are dangerous were (and even have been until lately in certain prisons) chained up in the jails somewhat like wild beasts.

There was a very severe epidemic of cholera in Bharatpur in June 1856 which extended to Jaipur in July.

Fifty-six out of sixty-one operations for cataract were done by Dr. Ebdon himself, to whom Sir H. Lawrence, the Agent to the Governor General, gave the highest praise in his official report to Government, not only for his professional work, but for his watchful care and labours in the cause of medical progress in Rajputana generally. On this account he spontaneously recommended that an allowance of Rs. 150 per mensem should be given to the Superintendent of Vaccination and Dispensaries in Rajputana, as he was styled in matters relating to the Native States Medical Institutions. The Agent to the Governor General remarked that it would be useless to expect pecuniary assistance from the Native Princes for vaccination, as they declined the advantage of it, though the poorer classes were not unwilling to submit to the operation, which indeed, according to Dr. Ebdon, was generally understood to be the same as inoculation, which had been long practised in Rajputana. Sir H. Lawrence also noted as follows:—"In no part of India are sanitary measures more urgently required than in Rajputana. The pestilence known by the name of the Pali plague twenty years ago commenced in the south-west corner of Rajputana, and alarmed all the North-Western Provinces as well as Guzerat. A similar, though fortunately groundless, alarm recently occurred. Small-pox yearly carried off great numbers. Two years ago cholera was very threatening, and during the last seven weeks nearly two thousand persons have died in the city of Bharatpur and proportionally in the surrounding villages."

He also proposed a scheme for attaching youths to each dispensary as compounders or dressers, and moving them about every 18 months or so, in order that they might come under fresh medical men, after which the best of them were to go to Agra as medical pupils. The Government of India not only considered the report to be highly gratifying, but approved the more substantial acknowledgment of paying an allowance to Dr. Ebdon, and therefore strongly recommended the proposal for the sanction of the Court of Directors. Sanction was accorded by the Court in its Despatch No. 107 (paras. 8 and 9), dated 29th July 1857, and payment of the allowance from July 1st, 1856, was sanctioned by the Government of India in its letter No. 430, dated 2nd February 1858, to Brigadier-General Lawrence, Officiating Agent to the Governor General.

The report for the year ending June 30th, 1857, was not submitted until November 10th, 1857, because Dr. Ebdon had "deemed it advisable to detain the papers until the country should be quieter, the post roads more safe, and attention of the Government rather less fully occupied."

The return which accompanied the report showed that one new dispensary had been opened, *viz.*, at Dig. There were now nine, including the Agency Hospital. The total cases treated had risen to 4,023 (only 56 of which were done in connection with the Agency) and there were 63 cases of vision restored in cataract.

In his report Dr. Ebdon first refers to the prevalence of scurvy in Rajputana, and quotes Dr. Mackinon, who, in a memorandum on the epidemics of India, "alludes particularly to the scurvy and its serious effects, as evinced in the complications of other disorders, among the sepoys serving or having served in Rajputana." Dr. Bowhill, who had resided in different parts of Rajputana nearly fifteen years, attributed many serious diseases, not excepting leprosy itself, to the scorbutic tendency of the climate.

Dr. Ebdon goes on to state that "the general loss of tone in the system of natives of own provinces, if not even in Europeans also, is a very marked effect of a continued violence in Rajputana, and one that is daily presented to us." My extended observation of 26 years does not confirm this view, nor do the greatly increased statistics do so. One of the chief dispensaries there were no operations for calculi, but Dr. Burr had 68 numbers at Jaipur, and performed his full share of other important surgical operations well.

There were 100 cataract operations with 68 successes. Dr. Ebdon performed in most cases the operation of *depression*, "because natives of India generally fear the knife so much that their eyes are so badly shaped and so ill-adapted for the operation of extraction," but chiefly perhaps because he could only operate on the march.

As regards vaccination, he remarked that "the Jeypurians seem to have an insuperable aversion to being vaccinated on any terms." The work done in the Agency Hospital fell off because the camp had halted a month at Nimach.

At Jaipur, the Agency Surgeon had of late been additionally charged with the care of the Raja's jails and lunatic asylum as also with that of the general hygiene of the town and its garrison; but these latter duties were not supervised by the Surgeon of the Rajputana Political Agency, whose care was extended only to the dispensaries of the Rajas.

Dr. Ebdon considered the jails had been improved, but was in doubt as to whether all the prisoners, especially Political ones, were shown to British officials, and he hinted at stories of oppression. Many cases of fevers of typhoid form were seen which did well under frequent and reiterated doses of half an ounce of bazar spirit in *chiretta* or some other bitter. The worst cases of enlarged spleen, which were frequent, yielded (if they did not do so to full doses of steel, rhubarb and aloes) to iodide of iron in ginger-syrup, with blisters and counter-irritations.

Assistant-Surgeon T. M. Lowndes, M.D., was appointed in 1858 to officiate as Surgeon to the Rajputana Agency, and on November 27th submitted the report for the year ending June 30th, 1858, but could not make many observations as he had only taken over charge towards the close of the period.

Two out of the eight dispensaries, *viz.*, those at Kotah and Dungarpur, were closed at the commencement of the Mutiny, and the small institution at Dig, on the same account, was closed for eight months and was only re-opened in March 1858. The same causes led to diminution of attendance of patients at the beginning of the period, especially in Bharatpur, Jaipur, and Jodhpur, etc., but great improvement took place at its close. The Maharaja of Jaipur had agreed to open a hospital for women.

On the 10th August 1857 a magazine exploded at Jodhpur, and many people who were injured were sent for treatment to Mr. Collins at the dispensary. The explosion, the effects of which are still visible on the side of the fort, was described by Mr. Iltidus Pritchard in a work he wrote on the sepoy revolt in Rajputana. The total attendance amounted to 68,030 persons, of whom 43,945 were treated in the Bharatpur Dispensary.



The returns for the year ending June 30th, 1859, were submitted by Assistant-Surgeon Lowndes on 28th October 1859. The report is prefaced with some remarks on the general physical features of the cities of Jaipur, Bharatpur, Jodhpur, and Karauli.

As regards Jaipur, its sanitary condition was stated to be not better than that of less pretentious towns. There was no artificial drainage. The attendance of the sick at the dispensary for so large a place was small. At the Midwifery School, which was flourishing, *dhais* were taught by familiar conversation rather than lectures. Dr. Lowndes did not take the same view as his predecessor of the health of the Jails, which he considered bad. Bharatpur after the rains was situated in a marsh surrounded by vegetation and decaying vegetable matter, hedged in with trees and ramparts, and was therefore not favourably placed in a sanitary view. These unfavourable conditions existed for a considerable time around the city, and influenced the health of the people, who suffered much, as shown by the returns as well by their appearance, from malarial forms of disease. These unhealthy conditions prevailed from the middle of August to the end of November, and applied also to Dig. It occurred to Dr. Lowndes that the attendance at the dispensaries was exaggerated, but careful enquiry showed that this was not the case. The type of malarial fever was usually quotidian and mild in character. The dispensary was too small and the hospital too far from the town. These evils are only being remedied this year (1896) by the erection of a fine hospital in the city, the completion of which may, however, be delayed by want of money. Ten cases of lithotomy, with one death, had been performed. There had been six amputations, and 14 cases of cancer had been operated upon. Vaccination had been carried on with success, as 3,476 children had undergone the operation.

The Jail, which was constructed on the radiating system, was situated four miles west of the town, and was said to be healthy; but the death-rate had been 17 in 1175 prisoners or a fraction under 10 per cent. of the strength, which is really exceedingly high. Dysentery and diarrhoea were the chief causes of the mortality. Much praise was given to Assistant-Surgeon Bholanath for his good work at Bharatpur.

Jodhpur was reported to be a very dirty city with a scanty supply of water. The dispensary had suffered by the sickness of the apothecary. It was especially remarked that the female attendance was less than at other places. Little was known of the Jail. Dr. Mathias had been appointed to the medical charge of the Alwar Political Agency and had established a dispensary at which 150 patients attended daily. A small hospital was planned to take the place of a temporary shed. Regular returns had not yet been sent in.

The hills to the north-west prevented free perfusion of air. The city was therefore ill-ventilated. Attempts had been made, however, to pave and drain the main streets.

Karauli, which is situated in the midst of deep ravines of sand, was stated to be well built. The dispensary was doing good.

Dr. Lowndes mentioned that attempts of a rude kind had been made to collect vital statistics at Bharatpur, but that these were so crude as to be almost useless. It is, however, the first mention of the subject in Rajputana Medical Reports.

During the year, exclusive of Alwar and the Agency Hospital, only six dispensaries had been open. The total attendance, including the Agency, had risen to 78,495, of which Bharatpur and Dig showed 60,476.

The report for 1859-60 was only sent in on December 8th, 1860.

It was noted that a branch dispensary had been opened in the city of Jaipur for which returns would be available in the next annual statement.

The Midwifery Hospital was highly commended, but the dispensary attendance was still small. There had been 22 major operations, of which seven were for calculus in the bladder.

The mortality in the Jail amounted to 31·3 per mille of strength. The Bharatpur dispensaries were working satisfactorily, and a new institution had been opened in May 1860 at Gopalgarh. Mr. Collins had died at Jodhpur and the dispensary attendance had fallen off greatly during his long illness.

In the Alwar dispensary, which was established in October 1859, much good work had been done. Dr. Mathias had removed 50 or 60 tumours of various sizes, had performed lithotomy ten times for calculus, and had had many other important operations, insomuch that he thought he had nearly cleared the district of such cases. There were a number of cases in which amputation was necessary, but the patients would not submit. He hoped shortly to be able to open a dispensary at Rajgarh. In January 1860, Dr. Lowndes suggested that a small charitable dispensary should be opened at Deoli, and Dr. W. Playfair, the Medical Officer of the Deoli Irregular Force, promised to attend to the sick. The Kotah Dispensary was re-opened.

Small-pox prevailed to a great extent in Rajputana in the winter of 1859-60. It was especially severe in the Western States and in Haraoti.

Dr. Lowndes drew up a general scheme for extending vaccination in the Native States, and favourable replies were received in most cases from the different Darbars. Twelve vaccinators, out of twenty-two whom he proposed to employ, were actually at work during the year. He desired that each State would send a man or two to Abu to be taught how to perform vaccination, and he intended to instruct them also in the art of dressing wounds and ulcers, and in the common treatment of the more ordinary diseases of the country. Vaccinators might still with advantage be instructed in this way. In some States they are taught a little in the hospital, and in others, in the hot season, they act as additional dressers or compounders.

There were now nine dispensaries at which the total attendance had reached 99,768, Bharatpur showing for its three institutions 70,871 out of the total number returned.

The report for 1860-61 went in on November 12th, 1861.

Dr. Lowndes began by lamenting the deaths of Mr. Collins in November 1860, of First Class Hospital Assistant Abdul Karim in April 1861, and of Dr. Stewart, Surgeon of the Bharatpur Agency, who fell a victim to cholera in Agra in June, after having passed scathless

through an epidemic of that disease in June at Bharatpur, where he had been a most able and zealous Superintendent of the dispensaries for a year-and-a-half.

The total attendance at the institutions, which now numbered 13 without the Agency Dispensary, reached 96,270, Bharatpur as usual being first with 59,693 patients in its four institutions. Of the latter only 774 were treated in the hospital, proving the uselessness of having an important institution of the kind several miles distant from the people who ought to use it. Dr. Lowndes refers to the large attendance of women (25 per cent.) and of children (15 per cent.) as being unusual and therefore most satisfactory.

Cholera prevailed in the Bharatpur State from May to October, and 682 deaths were reported.

Jaipur continued to advance and sanitation was receiving some attention. At Alwar the wards for males were full, but that for women was often empty or nearly so for weeks together.

The principal streets of the town of Alwar were being paved at the cost of the inhabitants, who, according to Captain Impey, the Political Agent, cheerfully met the charge as they soon saw how much they benefitted by the work.

Dr. Lowndes held this to be the only principle calculated to carry out sanitary reform and gradually to make the people themselves anxious to improve their condition. Unfortunately, very few of the inhabitants of Rajputana even yet appear to share his views, as all look to the native governments to carry out such work, and indeed some have said that it is a very bad thing for private individuals to interfere in matters of the kind.

The Jhalawar reports showed a greater attendance than at any previous period. The attendance at Jodhpur had much diminished, and the Chief showed no inclination to replace Mr. Collins. Vaccination had not made so much progress as was expected.

At Tonk, however, 2,300 persons had been vaccinated, and, as a large number of crusts which had been sent to Dr. Lowndes seemed to show, with a fair amount of success. Several of the vaccinators in Dungarpur and its neighbourhood seem to have been lost as nothing could be heard of them. Thirteen thousand two hundred children are said to have been vaccinated, with proved success of 56½ per cent., at Bharatpur.

The report for 1861-62, which is dated 8th December 1862, shows an increase in attendance of patients, as the total reached 114,561, Bharatpur leading as usual with 71,407 treated in eight institutions, Jaipur coming second with 10,471 cases.

New dispensaries were opened under Dr. Mott at Pahari, Rupbas, and B'ana in the Bharatpur State in September and October 1861, and in Weir in the same State in April 1862.

Dr. T. Murray relieved Dr. Burr at Jaipur in January 1861. The former officer reported that the Midwifery Hospital was chiefly filled with women who were sent by the police when it was suspected that they intended to procure abortion; other poor people, chiefly unmarried persons, came willingly.

The Alwar Dispensary continued to do well, and a new institution was opened at Tijara in October 1861. In referring to the Kotah Dispensary Dr. Lowndes, while observing that the Hospital Assistant was unable to operate, which militated much against the usefulness of the dispensary as compared with others, remarks as follows, "for successful surgery has, far more than successful medicine, the effect of spreading the fame of these institutions."

Sub-Assistant Surgeon Abdul Hamid extracted a promise from every patient before he heard him that he would attend regularly until he was dismissed, as he held that it only brought our system of medicine into discredit if the patients did not attend regularly. A dispensary was opened in a new building under Dr. Ogilvy, the Agency Surgeon, at Udaipur in April 1862.

Dr. Lowndes gives an interesting return of all cases of stone treated by operation in Rajputana for four years, from which it appears that out of 107 patients, five died, or a percentage of mortality of 2 in 21½ compared with in 1 in 7, the English rate at that time. The number of vaccination cases had risen to 13,734, Bharatpur leading with 8,513. The difficulty in obtaining qualified native doctors at this period is shown by the fact that Dr. Burr put a man in charge of the Jodhpur Branch Dispensary whose only training had been under his father, a native doctor at Delhi. Dr. Lowndes advised that he should be taught for a time the use of native medicines in the main dispensary under Dr. Burr himself. It is not surprising that with such men in charge little real progress was made. In May 1863 Dr. Lowndes suggested that Dr. Mott, the Agency Surgeon and Superintendent of the Charitable Dispensaries at Bharatpur, should be allowed to move about in the cold season and inspect vaccination, receiving a daily allowance for the purpose, and that he should be granted an extra monthly allowance as Inspector of Vaccination by the State. These are the first indications of inspections being encouraged and of payment being made for them. He was never to be more than ten days away from head-quarters.

In reply to Dr. Murray, Deputy Inspector-General of the Agra Circle, Dr. Lowndes wrote that no returns or reports had ever been sent from the surgeons to the different Agencies; he did not know the reason, but added that really there was nothing to report about. The reports of the escorts of the Agencies were sent in to the regiments to which they belonged.

The report for the year 1862-63 shows that 113,346 patients were treated in the dispensaries which now numbered twenty, 66,203 of them having been seen in the Bharatpur institutions alone.

Dr. Mott complained of the poor pay which was given to the native doctors, and the Superintendent concurred in thinking that until the salaries were raised the better classes of native would not enter the Department. Arrangements had been made for inspections of the district dispensaries by the Superintendent.

Besides Bharatpur, only Alwar amongst the Native States had opened dispensaries in the districts. The opposition of *bairis* and *hakims*, both there and at Jodhpur, was referred to, and it was suggested that it might be gradually overcome by teaching their sons. It is still a difficulty, but even now youths of these classes do not show any great

desire to avail themselves of our educational advantages. They are as a rule but poor scholars. As regards the former, religious prejudice interferes, as their fathers depend in their treatment as much upon the practice of certain religious charms and the use of sacred texts as upon the actual administration of drugs. The *hakim*, on the other hand, lives on a dead past, and, if he has read a few Persian or Arabic medical classical works, he thinks he is sufficiently expert to visit the sick.

Dr. Lowndes still thought the attendance of sick at Jaipur was far too small. The Alwar institutions showed progress under Dr. Dickson as also did the Udaipur Dispensary under Dr. Ogilvy. Dr. Moore drew attention to the want of support of the Jodhpur Darbar, but the dispensary attendance had increased, though it was still small, there having been only 1,229 new cases. Vaccination was improving, but chiefly at Bharatpur, in which State 1,036 cases out of a total of 16,714 were returned.

The returns of 1863-64 indicate that 132,636 patients were treated.

The following tables which are taken from Dr. Moore's report for the half-year ending December 1867 show the rate of progress of the Department from 1863. From this year onwards annual, instead of half-yearly, reports were submitted, by direction of the Agent to the Governor General, and the returns from that date were prepared on printed forms:—

Years.	Number of Institutions.	Number of Patients treated.
1863 . . . .	20	113,346
1864 . . . .	20	132,636
1865 . . . .	24	142,780
1866 . . . .	33	150,034
1867 . . . .	38	158,465

From 1867 all Jail hospitals, from which separate returns were received, were counted as separate institutions.

The figures for vaccination were as follow:—

Year.	1st-half.	2nd-half.	TOTAL.	Percentage of success.
1863 . . . .	16,714	12,089	28,703	59'0
1864 . . . .	32,033	9,706	41,739	68'1
1865 . . . .	22,436	18,837	31,273	66'5
1866 . . . .	27,247	12,750	39,997	66'8
1867 . . . .	44,837	17,784	62,657	70'0

The following are the most important matters to which attention was drawn in those years. The records for the period are, however, very imperfect in both the Rajputana Agency and the Administrative Medical Officer's offices. It does not appear that the annual reports on the different dispensaries were circulated for the information of the medical officers in the province, but Dr. Lowndes hoped to be able to do this in future for the common advantage. In 1868 the dispensary in Bharatpur worked most satisfactorily under Dr. Mott. Special reference was made to the great prevalence of malarial fever in the low-lying districts near Bharatpur, Dig, Gopalgarh, Kamah, and Pahari, which had an admission rate of  $34\frac{1}{2}$  as compared with  $11\frac{3}{4}$  per cent. in the more healthily situated towns of Biana, Rupbas and Weir.

In the Jaipur Jail there had occurred a severe epidemic of yellow fever which occasioned great mortality. This prison was much overcrowded. Vaccination was maintained with success during the hot weather by Dr. Burr, but failed in the rains. The attendance at the Jaipur City Dispensary was still thought to be small for so large a place. Some objection was taken to treating venereal cases in the Midwifery Hospital, and no doubt the practice was harmful and calculated to keep away respectable women. Vaccination in Tonk was not very successful, although the Nawab and his sons did what they could to remove the prejudices of the people by inducing those who lived in the Palace to have their children operated upon.

#### 1865.

Cholera occurred in Rajputana especially in the south and south-east. Small-pox also prevailed in Jaipur, but prejudices against vaccination were diminishing.

Dr. Burr had endeavoured to collect lymph from the cow. The Bharatpur and Udaipur dispensaries were doing valuable work. In the latter city Dr. Cunningham noticed that a large number of cases presented themselves for treatment in which it was altogether hopeless to effect a cure. These were chiefly due to chronic disease, which Native *hakims* had for a long time treated by mercurials and the actual cautery, whereby the constitutions of the patients had become greatly debilitated.

A new native doctor had arrived at Jodhpur and work was progressing.

A dispensary and hospital were spontaneously opened by the Raja of Khetri, who took great personal interest in the study of medicine and had a large library of medical works.

The Kotah Dispensary had diminished in usefulness during the incumbency of the native doctor, who was therefore about to be transferred.

The native doctor at Jhalrapatan, although a Mehamadan, named Mohamed Nanin Khan, had attained to extraordinary popularity.

A new dispensary was opened at Tonk and good work was being done there. Colonel Eden, the Agent to the Governor General, remarks, in the first annual report on the Political Administration of Rajputana for 1865-66, that the majority of the dispensaries were "comparatively elementary, but that they meet the wants of the classes to whom

they are intended to administer is evidenced by the large crowds who attend daily at their doors, and who, in very many instances, travel 30 or 40 miles to seek relief. This fact, too, is perhaps the best proof that their benefits are recognized and appreciated in the districts in which they are situated."

Vaccination was making progress, but inspection was difficult. With a view to test the vaccine matter, isolated vaccinators regularly forwarded crusts for the inspection of the Superintendent. There was some difficulty in keeping up a supply of lymph throughout the year, and some tubes obtained from Europe did not always give good results. No one thought of keeping up the vesicle throughout the hot weather, except at Abu, where the Sirohi vaccinators had maintained a constant supply of the virus, which only on one occasion required renewal.

#### 1866.

A dispensary was established at Deoli, through the exertions of the Political Agent and of Dr. De Fabeck, for the poor of the surrounding districts of Jaipur, Bundi, Kotah, and Tonk. It was jointly supported by the Darbars of those States.

New dispensaries were also opened at Akhaigarh in Bharatpur, and at Balmer in Marwar.

In proposing to open a dispensary at Sirohi, the Rao expressed a wish that the native doctor in charge should be expert in the dressing of shot and arrow wounds, thus indicating very clearly the lawless character of the population in his territory. The Political Agent at Bharatpur reported that out of the thirteen Parganas which comprise the Bharatpur State, only four were without dispensaries. This was the first State to aim deliberately at having such an institution at the headquarter station of each district, and the project was one of the results of British influence during a minority. It was the custom in this State for the native doctors who were attached to dispensaries to carry on vaccination work during the cold season. The Assistant-Surgeon at the Agency constantly travelled about and inspected the work.

#### 1867.

The reports and returns up to the close of 1867 were somewhat discursive in character and very little attempt was made at tabulating the results of treatment, or of showing with very much exactness the caste or sex of patients. From this year a change commences; the returns were brought into harmony with those of other provinces, and they assumed a more scientific form. Moreover, they were now regularly printed, and copies were forwarded to the different medical officers, so that they might compare their own results with those of other surgeons.

In 1867, Dr. Moore stated that 37 vaccinators were employed. Bharatpur was, probably, most advanced because of its vicinity to British districts, its being under British management during the minority of the Chief, and its having had a succession of energetic medical officers.

The Chiefs and Nobles in many States had had their own children vaccinated, but not so much benefit had been derived from their example as might have been expected. The Nobles, however, rarely persuaded their people or dependants to avail themselves of the advantages in which they themselves believed. This is as true now as when Dr. Moore wrote. The influence of Chiefs and Nobles is of great value up to a certain point, but prejudice, and, above all, ignorance, are most to blame where vaccination does not flourish. The priest has perhaps more influence than the Noble, and generally he has not been in active opposition in Rajputana. The village headman is also very influential. Inoculators are only occasionally heard of, and that in the most remote places on the borders of Jaipur, Marwar, and Bikaner. As long as one case of small-pox occurs it will become a centre of infection, but it will be many years before the disease can be stamped out as it ought to be by isolating such cases, and vaccinating all round them. Dr. Moore recommended the employment of an European General Superintendent, but the Government of India did not think such a step was necessary. The great difficulty is that the mortality of children of the vaccination age is great, and consequently some of them may die at or about the time the operation is performed. The death is then attributed to the vaccination operation and not to ordinary disease. Strict orders are given not to vaccinate unhealthy or diseased children, but still cases of the kind may occur and so for a time create a panic and some opposition. The number of important operations was everywhere as yet small. The Jaipur Medical School, under Dr. Burr, had been in existence some years. There were twelve students, and six had been passed out ten months previously.

Dr. Moore considered that four of them were as well qualified as the ordinary native doctors of the 1st class, and the rest were promising youths. He thought that the expense of maintaining such a small school would probably lead to its abolition. It was abolished in 1868. Dr. Cunningham of Udaipur referred to the mischief arising in surgical cases from the malpraxis of *hakims*, and the Superintendent was of opinion that this pointed to the advantage of opening more branch dispensaries, because the people, while submitting to dosing with drugs by indigenous practitioners, rarely had any confidence in their surgical skill, and that with justice, as they have no knowledge of anatomy.

In the Mewar State a *chaprasi* accompanied each vaccinator, but it was considered that under cover of the belt, his official badge, this person might, or must, oppress the villagers. No doubt this was, and is, true.

#### 1868.

The attendance of patients rose in 1868 to 160,310 in 40 different institutions, *viz.*, in 3 Hospitals, 14 Main, and 19 Branch Dispensaries.

Bharatpur still accounted for the maximum number of cases, *viz.*, 83,620.

Dr. Moore observed that the cases of malarious fevers were fewer than in 1867, and in his opinion this comparatively small amount was evidently attributable to the scanty rainfall of the last monsoon, as, where there was little or no rain, the ratio of fever cases was smaller than in a country favoured with an abundant fall.

This fact confirmed the accepted view regarding malaria, *viz.*, that the drying process must be in vigorous action before the agent is produced.



It was stated that Rajputana enjoys considerable immunity from those more severe types of malarious disease which are known under one or more varieties of remittent.

The tables also evidence comparative absence of those spleen affections, the results of malária, so frequent in Bengal and the more southerly districts of Hindustan generally (or even all India?). Leprosy again is comparatively rare in Rajputana. On the other hand, dysentery and diarrhoea, ophthalmic maladies, skin diseases, syphilitic affections, and abscesses and ulcers, all take a high figure.

After intermittent fever, syphilitic maladies and the abscess and ulcer group are the most prominent, being respectively 8·18 and 9·55 per cent. on the total. Writing after 25 years' residence in Rajputana, I can testify to the truth of most of these views, except perhaps, that I have met with a very large number of huge spleens, less syphilitic disease and fewer cases of dysentery. Dr. Moore again emphasized the great necessity of surgical skill, of which the native doctors possessed but little. He showed how dispensary statistics might be utilized in studying scientific or popular questions or fallacies; for example, he made special enquiries as to whether the phases of the moon had any influence on malarial fevers. He decided that there was no connection between paroxysmal disease and periodical lunar change. In my Medico-Topographical Account of Jaipur I showed that I was not able to find that any appreciable changes in the weather, especially in the rainy season, were due to lunar influence.

A severe epidemic of small-pox prevailed. In Bharatpur, Dr. Harvey showed how much the people had been impressed by the immunity of vaccinated children and especially by the fact that in one family a vaccinated child was the only one that escaped variolag. The feeling had changed since the epidemic of 1864-65, when the people, as reported by Dr. Mott, entertained greater fears than ever concerning the utility of vaccination.

In Bharatpur Dr. Harvey, now Surgeon General and Director General, Indian Medical Service, threw some doubts on the accuracy of the returns of patients and noted that a good many of the native doctors were merely promoted compounders, dressers, or *hakims*. The increase of the number of the dispensaries had therefore been in excess of the money available for supporting them and in the supply of qualified men to manage them. From this date Bharatpur, from the same and other causes, began to lose its pre-eminence of being from the medical point of view, the first State in the Province. Mention is now made for the first time of the want of a sanitary officer in Rajputana, but in the light of modern and extended experience, it may perhaps be permissible to observe that what is most desirable is the establishment of local sanitary boards of prominent persons representing different interests with medical sanitary inspectors under the immediate local medical authority. The officer whose duty it is to try to cure disease is quite as much required to endeavour to prevent it, and should keep all the reins in his own hands. What he wants is good men to carry out his orders. These are the views most recently published by the Government of India which has subordinated the Sanitary to the Medical Department.

The Jaipur Jails, which were notoriously unhealthy, had not much improved. The cases of sickness were variously attributed to inferior diet and overcrowding. The evil

continued to exist for many years, and has only been put a stop to, it is hoped permanently, by the creation of a large district jail and the improvement of the diet, as well as many more changes, which were supplemented in 1897 by the completion of a separate prison for women. Overcrowding was no *doubt the main cause of the large* amount of disease.

### 1869.

The report for this year showed that 166,560 patients had been seen, and 49,611 vaccinations performed, exclusive of the Partabgarh and Dholpur States, from which no returns had been received. One dispensary at Nimrana had been abolished, and one at Dholpur had been added to the list. The Jasol Dispensary (temporarily closed in 1867) had been re-opened. Dr. Moore remarked that none of the medical officers, notwithstanding the scarcity of food, had seen cases of relapsing or famine fever, which confirmed Dr. Murchison's view that this disorder does not occur in India. It is doubtful whether as much can be affirmed at the present day.

The average percentage of attendance of females, *viz.*, 20.07, has not greatly increased in Rajputana since 1868. There was a slight fall off in the number of vaccinations, but the percentage of success had risen to 78.91. During this year the Agency for the Eastern Rajputana States was formed, and in consequence the Alwar and Karauli medical institutions were placed under the immediate executive charge of the Agency Surgeon. They had been previously directly under the Superintendent.

A code of rules for the management of dispensaries and vaccination was published under the authority of the Agent to the Governor General, and native doctors, who were Government servants, were examined for promotion according to the rules laid down in Governor General's Order No. 945 of 1868. Native doctors were also attached to the camps of two Engineers.

Cholera appeared almost simultaneously over Rajputana. Dr. Moore considered that facts were opposed to the theory of the malady being disseminated only through human intercourse, and that they evidenced rather a *de novo* origin, although he believed that it was conveyed along the great lines of road. Some cases seemed to show that there was a pseudo-cholera due to want of food, to bad food, or to fatigue.

The medical charge of the Jaipur Jail was made over to Dr. Valentine, the private physician of the Maharaja of Jaipur. This was the beginning of a change which ended in all the medical institutions in Jaipur being taken away from the management of the Agency Surgeon, to whose care they did not revert until 1880. Dr. Moore regretted to have to report that the Midwifery Hospital at Jaipur had also been closed. It was, however, proposed to establish six new district hospitals in that State.

The Jhalawar Chief proposed to establish a branch dispensary at the Chaoni or Cantonment, in which he generally resided. It is situated at a distance of four miles from Jhalrapatan, the Capital, and the hospital there is now the principal institution.

1870.

During 1870, 16,943 patients were treated in 57 institutions, and 48,833 persons were vaccinated.

Six new dispensaries were opened in Jaipur, *vis.*, at Dausa, Achrol, Chatsu, Dudu, Hindown, and Mhowa, and one each at Bikaner, Kherwarra, Banswarra, Sambhar, and Anadra, a small place at the foot of Mount Abu. The increased attendance was owing to the opening of the new institutions, but at the older ones there had been a falling off on account of the year having been a healthy one.

Fever at Jaipur assumed in a larger number of cases a remittent type or a mixed form, which Dr. Moore designated as typho-malarial. It was also noticed that the usual increase in admissions for malarious fevers began in August instead of in October, which was probably attributable to an early rainfall after a long break had occurred.

He also referred to the probability of 80 per cent. of the inhabitants of Rajputana having suffered from one or other variety of malarious malady before the age of puberty, and to the possibility of frequent relapses in these cases without fresh exposure to so-called malaria.

The high percentage of malarious disease at Abu, both amongst Europeans and Natives, was also the subject of a long paragraph. Dr. Moore observed that, "Abu is no doubt naturally malarious. The formation of the surface, in combination with the effects of a tropical sun and of a tropical monsoon, must render it so. The comparative cool atmosphere, the capability of taking exercise without fatigue, the absence of the debilitating influence of continued solar heat, enable the system to withstand the effects of the mountain malaria (or chill?), while the latter, owing to the absence at any season of a still, damp, stagnant atmosphere, can never be concentrated, but must be conveyed away and diluted immediately on evolution."

Dr. Moore therefore considered that, while the Abu range is not the locality to which the great majority of sick men should be sent, "it still appears suited to the recreation of healthy men, who, under the ordinary care now afforded to soldiers, would retain their health to a much greater degree than on the plains, and who would, moreover, enjoy reasonable expectation of immunity from cholera never yet attacking Europeans on the hills."

These remarks are of much interest, as the detachment of the Erinpura Irregular Force, which is stationed at Abu, is to this day always unhealthy, and the children at the railway school, though apparently in good health when at Abu, suffer, it is stated, very much from various forms of malarious fevers or enlarged spleens when they go home for their holidays. This has led to a great diminution in the number of boarders who have been sent in recent years to the school. The local position of the buildings must, however, have some influence, because the pupils at the Abu Lawrence Asylum, in the centre of the station, appear to enjoy much better health. The attendance of females was still 20 per cent. or 6 per cent. less than in the North-Western Provinces.

It was hoped that the appointment of a female attendant in dispensaries would increase the proportion. This has not been done to a large extent up to the present year, and the ratio is not much higher now than formerly. There is an increase, as a rule, where the Hospital Assistant is old, kind, and naturally civil to women, but unfortunately with many men of this class it seems unnatural, if not impossible, to treat a female with respect. In all Jaipur dispensaries there is a separate room for seeing women, but it cannot be said that even this has done much good. There has, however, been a large increase of women in the wards of the hospital at the Capital which may be due to there being two female hospital assistants, and to their being only seen by the Superintendent and senior members of the male staff. Dr. Moore and Dr. Harvey produced vesicles in the cow, but not in the buffalo. They treated several buffalo-calves with animal lymph, and, as they got no vesicle, they thought the animal was not subject to its influence. The present general success of buffalo lymph shows that there must have been some defect in the experiments. In this year a code of regulations for the management of dispensaries and of vaccination establishments in Rajputana was issued under the authority of the Agent to the Governor General, and published in the Supplement to the *Gazette of India*, dated June 11th, 1870.

Dr. Moore proceeded to give a topographical and sanitary sketch of the principal cities in which dispensaries are placed. He showed how little or anything approaching a system of sanitation had anywhere been attempted.

As for epidemics, it was held that they were manifestations of the wrath of offended or malignant deities.

Everywhere one condition was strikingly prominent, *vis.*, the vast number of ruined or deserted houses, or debris of houses, which he considered to be due to a large extent to disease and death, or removal of the inhabitants owing to the unsanitary conditions under which they congregated. The truth of these remarks is evidenced by the fact that nearly every native Capital has one or two abandoned, or partially abandoned, ones beside it.

In all these places the water is brackish and nearly undrinkable. Even in the modern city of Jaipur, which is only 170 years old, out of 820 wells only 40 contained sweet water a short time ago. It is unnecessary to quote this part of the report at any length as the <sup>sc.</sup> histories will go thoroughly into the matter in each case. As regards surgery, Dr. Harvey, in relation to Mycetoma or Fungus foot, observed that he believed that when taken early this disease might almost always be cured without amputation being needful, although most authorities maintain the contrary. Dr. Moore confirms this view, and now, after considerable experience of the affection, I am able to state that I agree with them. The Bharat Jail was most unhealthy though superficially clean.

The foundation of the Mayo Hospital at Jaipur was laid in 1870, and the institutions generally were flourishing except the jail. The description of Udaipur sanitary conditions was stated to be a most unsavoury task.

The water in the lake, as taken for domestic purposes from the bathing ghats, was, except after a good monsoon, extremely foul. It cannot be said that there is great improvement at the present day. Under Dr. Cunningham, who was a keen operator, the dispensaries had done well. Kotah, which is still notoriously unhealthy, is described as in a most

revolting condition from a sanitary point of view. The recital of horrors culminates in the description of Jodhpur, which terminates in these words, "and from all I have seen or heard, Jodhpur (with the exception of a good road round the city made by Colonel Brooke during the famine) remains without the limits of ordinary civilized sanitation." There has been a great change in this respect. Alwar and its institutions are favourably noticed. At Khotri some attempts at introducing sanitary regulations met with great opposition, as the people regarded this action "as an encroachment on their personal rights." A dispensary for the use of the men of the Customs Department was opened at Sambhar, and the sick of the town were also treated in it.

Upwards of 75 per cent. of the persons treated were suffering from malarious fever,—a startling refutation of assertions made by various authors, to the effect that salt marshes and their neighbourhood are not productive of malarious disease. Having been Superintendent of this dispensary for 22 years, I may add that this is by no means a strained account of the prevalence of disorders of malarious origin. It is almost possible to tell an old Sambhar Customs peon from any one else. He is very anæmic and feeble when only from 50 to 55 years of age, and is often bent double by rheumatic pains. His tongue is, moreover, not unfrequently marked with black pigment. The towns-people seem less unhealthy. In the hot season the lake is almost dry and seemingly a mass of salt, from which foul sulphuretted hydrogen and other gases are exhaled.

1871.

Consequent on the transfer of the British Province of Ajmer-Merwara from Government of the North-Western Provinces to the Foreign Department, Govt Resolution No. 1890, 28th July 1871, Foreign Department placed all medical arrangements in British Rajputana under the Superintendent General of Dispensaries. The dispensaries in the abovenamed district were now, for the first time, included in the list of institutions, from which returns were received.

The total number of medical institutions therefore rose from 57 to 70, divided as follows:—

INSTITUTIONS.	Native.	British.	Total.
Hospitals . . . . .	2	...	
First class dispensaries receiving in-door patients . . . . .	19	2	21
Branch dispensaries . . . . .	27	5	32
Private dispensaries . . . . .	1	...	
Jail hospitals . . . . .	5	1	6
Jails receiving attendance from dispensaries . . . . .	4	...	
Public Works Department dispensaries . . . . .	...	2	
Inland Customs dispensaries . . . . .	...	1	
<b>Total . . . . .</b>	<b>58</b>	<b>11</b>	<b>69</b>

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mal institutions were opened in Native States, *viz.*, one by Babu, now Rao of Jodhpur, and one at Raja Kherra in Dholpur. One hundred and eight hundred and twenty-six patients were treated, of whom 170,895

showed in 60,829 vaccinations, 52,943 being in the Native States. The figures all excessive The Bharatpur attendance of sick, however, declined considerably. The with the ce of malarious fever at the Sambhar lake is again noticed and contrasted difference hunt of such disease at Mallani in the extreme west. The only physical Sambhar (the two places was stated to be the existence of the great lake at whereas at which no stream flows) with its many acres of stagnating mud and water; drainage in there was a similar desert-like salt area to Sambhar, but with good *viz.*, insufficient, uni River. In all the malarious places there was one thing in common, to the univ, inage; very little cholera occurred in the year. Dr. Moore referred enlargement of the *dhag* or actual cautery in numerous diseases, as, for example, and even in liver or spleen, rheumatic affections, inflammation of the lungs, cholera, less frequently fracture and unreduced dislocations. This rude remedy appears to be unfortunate, to since dispensaries were spread over Rajputana, but is still district, employed in the disorders of young children, particularly in the Kotah present en application amounts to torture, and where it is hoped that under the resorted to d young Chief it will be prevented. This barbarous measure is much fine is, and in other countries in which the Yunani or Greek system of Ev used.

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prevailed to an extraordinary extent in Marwar and in some other places. Jodh at which the disease was ordinarily prevalent in Rajputana were stated Kherwara in the Mewar Hill Tracts.

g wiculars of 3,229 cases which had occurred at Kherwara in the 27 years cityve to b, and was then of opinion that a permanently moist soil was most con- a st of the disease.

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inhabitars of similarity between Jodhpur and Kherwara were the practices of suming or washing in dirty water.

followinglucted an enquiry into the use of opium in Rajputana, which led him to ddy, thouons, *viz.*, that opium-eating was not connected with any particular baries; the occasionally caused constipation which led to application at the dis- ld have ubit did not lead to the dire consequences which sensational writers rial disease; that its moderate use was beneficial, especially as a prophylactic in in again

ed to thg to the unsanitary condition of many Capitals, the Superintendent from the tuation of some of them from a sanitary point of view, which he best har of defence having been the first necessity when they were founded. y. In re made of these conditions, and some were so bad as not to admit of a all places, he advised the institution of the *Barah Fatthar* system, that

is, the one in which boundaries were fixed beyond which human beings must go to the natural wants.

He objected to the burial of excreta without the intention of ultimately using it as manure.

Assistant-Surgeon (now Surgeon-General) Spencer took over charge of the dispensaries from Dr. Harvey, who had been severely injured while opening a very strong solution of Ammonia. There had, however, been an interregnum which had led to a diminution of attendance.

Dr. Mullen assumed charge of the Alwar medical institutions in April. The dispensaries were temporarily closed on the death of the Chief. On the whole, the dispensaries in Native States showed progress.

This being the first year in which the Ajmer-Merwara dispensaries were all an upon, a good deal of space in the report was taken up with an account of that only of the various institutions as well as of the towns in which they were situated. The report was made to the Commissioner on the sanitary condition of the city of Ajmer.

Dr. Moore concluded by pointing out the want of a medical school and a lunatic asylum for Rajputana. He thought both institutions might be conveniently placed at Ajmer.

1872.

In the report for this year reference was first made to the impossibility of certain returns, especially those relating to jails, which had been called for by the Indian Medical Service.

In the course of his remarks, Dr. Moore observed as follows:—"The idea of some of the Native States may be exemplified by Jaipur, perhaps the best native management, where lunatics are also confined by that most simple of all a long chain to the leg; by Bharatpur, where lunatics are similarly seen prisoners; by Bharatpur, again, from which jail the majority of the prisoners were last year, on the occasion of the birth of a son to the Chief; by Kotah, where they are taken out begging in the streets; by Jodhpur, where there is a crowded family of human beings, dogs, cats, pigeons, and rats wallowing in the dirt; by others, where they have added in other places where men and women lived and slept within sight of each other; other prisons, again, in which the long *bel* chain was used to bind inmates of a ward together at night, and the disgusting sanitary arrangements of sleeping men necessitated by its use; the placing in chambers like those in which who were condemned to isolation or death; and numerous other evils which have disappeared, but whose previous existence shows what ignorance, rather than what do, and what difficulties have beset reformers in Native States.

The Superintendent General, the title by which the Superintendent of the Indian Medical Service was compelled to omit the statistics of the Jaipur dispensaries owing to the fact that they had not reached him.

The medical institutions of the Jaipur State had fallen into the hands of the Maharaja's private physician, and, as previously stated, did not revert to the Agency Surgeon until the beginning of 1881. At the time this led to incomplete statistics being published. The correct figures for the whole of Rajputana can, however, now be given. They are :—

Attendance of patients in British territory	.	.	.	.	.	24,136
"    "    "    in Native States	.	.	.	.	.	189,883
					TOTAL	214,010
Vaccinations	.	.	.	.	.	68,643

Four new dispensaries were opened, *vis.*, one at Shahpura, one at Bari in Dholpur, one at the Jaipur palace, and one near the Ghat gate, Jaipur. The Abu Public Works Dispensary and the Palace Dispensary at Bharatpur were discontinued, leaving in all 74 institutions.

Rajputana had been free from epidemic cholera since 1869, but 1872 was emphatically a cholera season. Dr. Moore was still inclined to uphold the theory that the disease might originate *de novo*, as it had not been possible to trace most of the outbreaks to importation.

Only 300 major operations were performed in the whole province. Fever prevailed to some extent in Rajputana this year. With regard to opium-eating, reference was made to the practice of giving infants a small daily amount of the drug, which, although it was deprecated, did not appear to do them much harm.

Attention was drawn to the decay of the Bharatpur medical institutions from want of Proper support. At Alwar a new hospital had been founded. An interesting description was given of a journey Dr. Moore made from the Sambhar lake to the city of Bikaner, or through a great part of the Rajputana desert as marked on the map. This account might well be printed at length in the Marwar or Bikaner histories.

Some attention was paid to the collection of vital statistics at Ajmer, but they were only approximately correct. The large number of 1,723 cases of guinea-worm had been treated at Ajmer. Happily this scourge has almost disappeared since the supply of good drinking-water to the city.

### 1873.

The Jaipur statistics were again missing in the report this year, but have now been supplied. The attendance of patients was as follows :—

Native States	.	.	.	.	.	.	.	188,064
British territory	.	.	.	.	.	.	.	23,983
							TOTAL	212,047
Vaccinations	.	.	.	.	.	.	.	26,489



There were no new dispensaries, but one fewer, the Moti Singh private institution having been absorbed into the city dispensary at Jodhpur. Cholera prevailed, though not in such a large amount as in 1872.

Reference was made to the great difficulty in procuring good native doctors, even when liberal salaries were offered. The unsatisfactory state of medical affairs at Jaipur, and especially of vaccination, was once more adverted upon.

#### 1874.

The attendance of patients in 77 institutions rose to 234,053, of which 206,280 were in Native States and 27,775 in British institutions.

The Jaipur figures were now again included in the returns. There were 104,945 vaccinations.

Three new dispensaries were opened, *viz.*, two branches in Jodhpur City and one at Nagor in the same State. Dr. Moore noticed that the diseases prevailing in Rajputana did not materially differ from those of the North-Western Provinces. In some places there was a little more malarious disease, and he observed that "it has been repeatedly demonstrated in Rajputana that such fevers are more frequent when the monsoon fall was copious." He considered "that the fevers were not usually of a severe type, and were not generally followed by organic disease, such as enlargement of the spleen."

The Province was almost free from cholera.

The comparatively small amount of operative surgery, as compared with the Western Provinces, was attributed directly to the fact of so many of the institutions being comparatively so much less under the direct or daily supervision of an European officer, only eight dispensaries having this great advantage.

Dr. Moore was absent most of this year on leave, and on business in connection with the publication of a Manual of Family Medicine for India, which had won him an offer offered by the Government. It has now gone through six editions. The work was mainly intended for the use of officials and others who live at a distance from medical aid.

Bharatpur still gave the largest proportion of cases treated in any State, *viz.*, 66,374. Much of the vaccination was done by the native doctors at the dispensaries, a system which has the effect, perhaps, of diminishing to some extent the applications for relief of women who had young children.

A small Ophthalmic Hospital was opened in the City of Jaipur under a Hospital Assistant who had been for three months under special training with Dr. Macnamara in Calcutta. This institution had a short and unsuccessful existence. A large building, which had been erected to serve as a stable, was reconstructed at Jodhpur and made a very good jail, which was much required.

The new hospital at Alwar was opened, and vaccination was successfully pushed under Drs. Downie and Mullen.

1875.

During this year 246,198 patients were treated, of whom 221,130 were seen in the Native States, and 25,068 in the British institutions. New dispensaries were started at Sikar and Sambhar, but, in consequence of the opening of the Mayo Hospital at Jaipur, the old City Hospital, the Ophthalmic Hospital and two branches in that Capital were closed in order that the work might be concentrated in the new institution.

There were now, therefore, 78 medical institutions in Rajputana, of which 70 were in the Native States.

There were 80 vaccinators who performed 103,453 vaccinations, with a percentage of success of 88.40, the highest that had yet been attained. The rainfall was heavy almost everywhere, but, contrary to previous experience, the year was remarkably free from febrile maladies. The conclusion that a heavy monsoon implied much malarious disease was therefore at fault; and Dr. Moore, finding that in 1875 the rainfall was most excessive in September, or much later than usual, expressed the opinion that such disorders depended more upon the rapid drying up of the soil under a hot sun. In short, that as the rainy season of 1875 ran on into the cold weather, the usual elements were not present which were favourable to the appearance of paroxysmal disease. In 1875 cholera assumed epidemic proportions, and 2,776 deaths were reported. The Eastern States, especially Bharatpur and Alwar, suffered most.

Dr. Moore observed that there were many cases of venereal disease in Rajputana, but that his lengthened experience had led him to the conclusion that its ravages are, on the whole, much less than among any European or even British populations. My investigations lead me to hold somewhat similar views. Gonorrhœa seems to be little regarded, so much so that it would almost lead to the belief that a certain amount of immunity has been acquired.

Syphilis, while undermining the health of a great number of people, does not assume its worst forms very frequently. It may be because the people are almost always brought under the influence of mercury by the indigenous practitioners. There was very little small-pox in the year. Reference was made to the great want of dispensaries in certain parts of the Province, for example, in the States of Udaipur, Dungarpur, Bundi, Kishangarh, Tonk, and at Salumbar. The general condition of the people as a cause of disease was also mentioned.

The dearness of grain of course acted injuriously, but as the poorer classes, from poverty; and the richer ones, from ignorance, did not combine with their coarse grains a sufficient quantity of material rich in nitrogen, they had to eat a very large quantity of the former to ensure proper nutrition or were under-fed, in consequence of which they either suffered from dyspepsia or skin affections, abscesses, boils, and ulcers. It was regretted that unqualified native doctors were employed in some cases, particularly in Jaipur. These men are only now disappearing from the province, and there is no doubt that their entertainment has been pernicious, and has tended to injure the progress of medicine, and particularly of surgery, in Rajputana.

1876.

Dr. Moore supervised the institutions throughout the year, but Surgeon-Major Sutherland submitted the report. Dr. Moore left the province on promotion to the rank of Deputy-Surgeon-General in Bombay. His services in Rajputana were highly commended by the Agent to the Governor General. His accounts of the medical institutions had been full and interesting. From his departure, however, the Rajputana medical reports assumed a more rigidly official form, and are, therefore, perhaps less attractive to the ordinary reader, even if they are as instructive.

The hospitals and dispensaries were classed as follows :—

*First Class—13.*

Bharatpur Hospital.	Ajmer Dispensary.
Bharatpur Dispensary.	Kotah Dispensary.
Jaipur Hospital.	Jodhpur Dispensary.
Udaipur Dispensary.	Alwar Dispensary.
Jhalrapatan Dispensary.	Tonk Dispensary.
Karauli Dispensary.	Dholpur Dispensary.
	Shahpura Dispensary.

*Second Class—24.*

Khetri Dispensary.	Banswara Dispensary.
Sikar Dispensary.	Abu Dispensary.
Partabgarh Dispensary.	Kherwara Dispensary.
Pali Dispensary.	Bikaner Dispensary.
Nagor Dispensary.	Sambhur Dispensary.
Deoli Dispensary.	Jhalrapatan (Chaoni) Dispensary.
Sirohi Dispensary.	Beawar Dispensary.

etc., etc.

*Third Class—39.*

Jails having a special establishment . . . . .	4
„ having a separate medical subordinate . . . . .	2
„ having medical aid from dispensaries . . . . .	8

There were 10 European Medical Officers, 32 Hospital Assistants, and 37 Native Doctors engaged in the medical charge of those institutions.

As the character of the reports had so much changed, it will be convenient to group the statistics in them in quinquennial periods, and to add a few remarks on each year.

## QUINQUENNIUM, 1876—1880.

Year.	PATIENTS TREATED.			VACCINATION.		
	Native States.	British Territory.	Total.	Vaccinators.	Vaccinations.	Percentage of success.
1876 . . . .	228,925	28,205	257,130	84	105,356	82.26
1877 . . . .	221,159	26,079	247,238	83	106,817	84.78
1878 . . . .	256,551	32,418	288,969	76	96,360	86.05
1879 . . . .	270,142	36,450	306,592	75	74,842	84.86
1880 . . . .	250,221	35,647	285,868	67	80,488	87.66

1876.

Cholera was very prevalent in the city of Bharatpur in August and September.

There were minor outbreaks in Alwar and Jhalawar.

There was a decrease in attendance in Marwar. The rainfall in that part of the province was 26 inches, a very unusual amount, which will be long remembered. The report for the province was very brief, as the new Superintendent-General was not in charge during the year under review.

1877.

Dr. Sutherland thought the considerable reduction of attendance in this year indicated an unusually healthy season, which may have been due to the smallness of the rainfall, which on the west of the Aravalli mountains amounted to little or nothing. The fall at Mount Abu was 16 inches against an average for 14 years of 68 inches. The number of major surgical operations increased from 394 in 1876 to 451 in 1877, which the Superintendent-General looked upon as very satisfactory, rightly considering that the chief utility of the hospitals consisted in such measure. There were only two operations for cataract in the year. As regards jails, the death-rate of unhealthy jails was raised by digestive and respiratory diseases, the former being proved by experience in British jails to be due to defective or improper food before or after imprisonment, and the latter to insufficient clothing in open-doored barracks at the commencement of the cold season. Overcrowding, which is generally admitted to be a very great, if not the greatest, cause of excessive mortality and sickness, was strangely enough omitted, though it is observed that the latter cause is necessitated by overcrowding. Epidemic cholera occurred in Jhalawar from August to December. Many people left the province for Malwa to obtain food for themselves and their cattle, but returned at the end of the rainy season, bringing disease with them. The surgical report of the Mayo Hospital at Jaipur contained much curious and valuable information. The Hospital Assistant at Dholpur was reported to have no taste for surgery. In the light of previous observations it would appear that the province would have gained by his removal. At Alwar there is a great falling off in important surgical operations which was not explained.

1878.

The report and returns on the Ajmer-Merwara dispensaries and of those in Native States were now separated but were published in one volume.

There was a considerable increase in the amount of sickness, principally of the nature of ague and severe forms of bowel disease following fever, which was said to be due chiefly to peculiarities of climate, the effects of which were increased by the reduced bodily condition of the poor people, owing to the scarcity of the previous year. The death-rate in the jails, in which the average number of prisoners was not materially larger than in 1877 increased four-fold. This high rate resulted chiefly from deaths in the Alwar and Jaipur prisons, which were at the rate of 378 and 163 per thousand.

Epidemic cholera spread over Rajputana, specially in the States of Jaipur, Jodhpur and Partabgarh. It was thought that many of the deaths in the Alwar and Bharatpur jails

were due to relapsing fever. Surgical operations of importance were fewer by 68. In Alwar they fell from 38 to 3, a diminution which Dr. Mullen could not explain, except that cases did not present themselves. Operations rose in the Mayo Hospital from 80 to 104, and all those for cataract except one were done there. Many of the annual reports describe great mortality among the people owing to malaria and destitution. Four thousand four hundred and thirty-nine persons were fed in the Jaipur poor-house from June to September, and Dr. Mullen thought that 10 per cent. of the Alwar population was lost by death and emigration.

### 1879.

Under instructions from the Foreign Office, the form of the annual report was changed. It was divided into three parts, dealing respectively with :—

- (1) Sanitation and Vaccination.
- (2) Dispensaries.
- (3) Jails.

Each section was sub-divided into two parts, *vis.*, matters relating to British territory and to Native States. Epidemic disease considerably decreased in British territory, but 873 deaths were reported in Alwar from cholera, 181 from Jaipur, there being a few cases in Bharatpur and Karauli. Sanitation was still in a backward state in the large cities, but Dr. Sutherland drew up some simple rules, which, with modifications to suit local circumstances, might, it was thought, be easily carried out, if the Chiefs were willing, by the machinery at the command of Darbars.

Vaccination was in an unsatisfactory state. To some extent this was stated to be due to the sickness of one surgeon, and to the withdrawal of the medical officer from Bharatpur.

There was a considerable increase of attendance at the dispensaries. It was remarked that the small number of surgical operations at Alwar (1), Jhalarapatan (2), Deoli (1), and Kherwara (2) was only susceptible of one explanation, *vis.*, that less interest was taken in the operations at these stations than elsewhere.

In Ajmer Dr. Newman extracted the lens of the eye in 26 cases for the relief of cataract, an operation that had not been performed in the Ajmer Dispensary for several years before he became Civil Surgeon. Many of the dispensaries showed a great excess in the numbers of cases of reduction of dislocation, treatment of fractures and of stiff joints, and consequently showed only a small mortality.

In the jails the death-rate fell in Ajmer from 45 to 35, and in Native States from 160 to 103, per thousand.

The Bharatpur and Dholpur jails still continued to be very unhealthy. In the former prison, the mortality is stated to have been shocking.

In the appendix a brief account of the work of the Mayo Hospital at Jaipur for the years 1877, 1878 and 1879 was published. Many deplorable illustrations of the ignorance and folly of persons enjoying a good position were given in this report. Cases of injury

from malpraxis of (1) *baidis* (Hindu physicians), (2) *hakims* (Musalman physicians), (3) barber surgeons, and (4) eye-couchers or Sathyas, were abundant.

Extracts from this report were given to show the difficulties attending surgical practice in Rajputana.

1880.

There was scarcely any cholera this year, but 660 deaths occurred from small-pox in Ajmer-Merwara. There were, however, no returns which related to the latter disease from Native States. Even at the date of writing this report little improvement has taken place. Severe epidemics are of course heard of, and every effort is made to combat them; but no accurate statistics of cases of deaths, except in a few Capitals, are available.

In 1880, however, Surgeon-Major Spencer, the Officiating Superintendent-General, did not think Native States were much affected.

The vaccination work had fallen off in Ajmer, and had increased in the Native States, though it was still short of that which was done in 1878.

In Ajmer, money was advanced by Government to carry out two important sanitary projects, *viz.*, the filtering of the lake water and the construction of a railway for the removal of filth from the town.

The attendance of patients in the dispensaries was less than in the previous year, which was due chiefly to malarious fever having been less prevalent in most places. The number of major operations increased, being as usual largest at Ajmer and Jaipur.

The health of the prisoners was good throughout the year. The death-rate in Ajmer fell from 35 to 10, and in Native States from 103 to 48, per thousand; but in Bharatpur it was still very high, *viz.*, no less than 124 per thousand.

#### QUINQUENNIAL, 1881—1885.

Year.	ATTENDANCE.			VACCINATION.		
	Native States.	British Territory.	Total.	Vaccinators.	Vaccinations.	Percentage of success.
1881 . . .	263,684	39,359	303,043	78	99,671	90.13
1882 . . .	284,607	38,452	323,059	82	119,704	92.21
1883 . . .	291,987	39,229	331,216	80	119,757	94.10
1884 . . .	334,772	40,009	374,781	80	148,407	91.98
1885 . . .	354,165	37,743	391,908	124	167,899	94.44

1881.

Meteorology now assumed more importance in the reports. The rainfall was less than the average at Ajmer and in the Southern, Northern and Eastern States, having been as much as usual in the western districts.

A first class observatory, with such automatic instruments as Van Rysselberg's Meteorograph and Osler's Anemograph, was established at Jaipur, which has continued to work up to date (1898), and, as it is situated within a few miles of the watershed of India on perhaps the most inter-continental situation that could have been selected, the observations which have been recorded at it have proved of special value.\*

Cholera gave a few deaths in Ajmer, 302 in Native States, of which 140 occurred at Jaipur and 152 at Bharatpur. Small-pox was widely prevalent, returns having been received from Jaipur, Jhalawar, and Ajmer. Sanitation improved in some places, particularly at Jaipur, and a circular regarding village sanitation, which had originally been drawn up by Mr. McConaghey for the Banda district of the North-Western Provinces, was issued.

Vaccination showed a decrease at Ajmer in the number of operations; in Native States the numbers were larger than in any previous year. The work at Alwar was particularly good.

Three new dispensaries were opened in Jaipur and one in Jhalawar. The number of patients increased in both divisions, and was general. The increase in malarious fever was also general throughout the States, but less in Ajmer. The operations increased, and the account of them which was given in 1880 would almost exactly apply to 1881. The death-rate and sickness fell from 10 to 4 and from 13 to 7 per mille, respectively, in Ajmer. In Native States the death-rate fell from 48 to 4 per mille, and the average daily sick was higher than in the previous year. The Bharatpur Jail was unhealthy.

#### 1882.

In the returns for this year the census figures for 1881 were used in calculating averages relating to population. It was stated that the subject of vital statistics in the Rajputana States was still insufficiently recognized.

Cholera visited Ajmer, causing the deaths of 289 persons; and in the Native States on the east and south there were more or less severe outbreaks, 1,038 fatal cases having been reported.

Vaccination made considerable progress, especially in the Native States.

The rainfall in Ajmer was three inches in excess of the average, and in Native States generally it was above the usual amount. There was a rather severe earthquake shock at Abu on December 15th, and minor ones were felt almost daily until the middle of March.

Earthquake shocks are not uncommon at Abu, and to a less extent in the plains of Rajputana, but as far as the writer's knowledge goes, have not caused much excitement or alarm, though it is stated that on one occasion some years ago one of the domes of a Jain temple at Dilwara on the Abu mountain was cracked across and the shocks were so severe that the residents went into tents. The census of 1881 referred to above was the first general enumeration of population which had ever taken place in Rajputana since the commencement of the English connection with India. Small-pox was widely distributed in Ajmer, but was less prevalent in Native States. Sanitary improvements were attempted in some Capitals.

\* Observations had been made, however, for some time in a different and somewhat imperfectly arranged observatory.

Three new dispensaries were opened in Jaipur and one in Kotah, and a fine hospital was substituted at Udaipur for the two dispensaries which had been previously maintained. The Agent to the Governor General regretted to "notice a falling off of 5 per cent. in the subscriptions of natives to the Ajmer dispensary, which was deplored because there were many wealthy citizens who freely used the institution. It was difficult to draw a hard-and-fast line at which medicine and advice should be refused *gratis*, but it was thought that persons who could afford it should be charged." This defect is still more apparent in Native States, where persons who are covered with gold ornaments are not ashamed to ask for free advice and drugs, and this lamentable want of self-respect is the great reason why a self-supporting medical profession does not exist in the greater part of India. The attendance of patients increased in both divisions, but, if cholera had not been present, the year would have been a healthy one.

Dr. Newman continued to operate on a large number of persons in Ajmer, and there was an increase of major operations in Native States, especially in Jaipur. Jodhpur (30 out of 57 major operations in the Jodhpur main dispensary) with Bharatpur and Jhalawar, returned, as in 1881, many cases of reduction of dislocation which the Superintendent-General thought must have been incorrectly diagnosed. If a person, who had once suffered from dislocation of the jaw, resides near a dispensary, frequent repetition of the accident has been known to raise the number of reductions in the institution very considerably. The death-rate in the Ajmer Jail rose from 4 to 26, but in the jails of Native States it fell from 46 to 36 per mille, the lowest yet recorded for Rajputana prisons.

### 1883.

In Ajmer the rainfall was scanty, and throughout Rajputana was much less than usual. Alwar remained the healthiest of five large cities which sent in returns of vital statistics, but Jaipur, owing to 343 deaths from cholera, was the last on the list.

Cholera prevailed in the eastern part of the province but not at Jodhpur or Udaipur; small-pox was not prevalent. Sanitary advance was slow.

The number of vaccinations was slightly greater than in 1882. The Alwar work was especially good.

In Jaipur a system of supervision of vaccination by Hospital Assistants was introduced, but, it may be stated here, was not found to answer, though Hospital Assistants are still allowed to operate if they do not do so in the dispensary itself, as that plan has a tendency to discourage the attendance of women and children. Two new dispensaries were opened in Jhalawar. There was an increase of attendance of patients in both divisions. One hundred and three major operations were done in the Ajmer Dispensary, and 439 in the Native States.

There were 26 cases of cataract in Ajmer and 7 in Jaipur. The deaths in the Ajmer Jail fell from 26 to 11, and in Native States from 36 to 33, the lowest on record in the latter case.



1884.

Twenty-seven inches, or  $3\frac{1}{2}$  inches more than the average rainfall, were registered at Ajmer. In the Northern States the fall was an average one; in the Southern States it was lower. The crops were, however, good throughout the province. The price of food was more than it had been since 1877. Cholera caused 227 deaths out of 361 seizures in Ajmer and 1,056 out of 2,278 in Native States, seven of which were affected. Small-pox was widely distributed, and fever and bowel complaints caused a larger mortality than in 1883, exemplifying again what, as before stated, appears to be the invariable rule in Rajputana, *viz.*, that much sickness follows much rain. Some progress in sanitary matters took place. At Jodhpur the staff of sweepers was increased and latrines were introduced.

Vaccinations increased in number, particularly in Jaipur. Three new dispensaries were opened in Jaipur, making the total for Native States 69.

There was a considerable increase in attendance. Malarial fevers increased considerably at all dispensaries.

One hundred and thirty-eight important operations were done at Ajmer, and 515 in Native States—an increase in both.

The death-rate in the Ajmer Jail fell from 11 to 3, and in Native States it rose from 33 to 45, or, exclusive of cholera, to 37 per mille. At Jaipur it became almost certain that the great mortality was due to overcrowding.

1885.

The valuable meteorological information supplied by the Jaipur observatory was noticed with appreciation.

The rainfall was fairly plentiful, except in Western Rajputana, but the harvest was not good owing to premature cessation of the monsoon. Grain was cheaper than it had been since 1876. Vital statistics were still very imperfect. Cholera was prevalent in Ajmer and in 12 States from April until October. Tonk, Kotah, and Jaipur suffered severely. The mortality at a Fair held at the Ramdeoiji Shrine in Marwar was terrible. Three hundred and sixty-two corpses were found near it and on the road to Jodhpur. The deaths were due, it is presumed, to cholera.

Small-pox was widely distributed. Fevers were less prevalent than usual.

The conservancy works at Ajmer were completed.

Vaccination showed advance in 11 out of 15 States.

Lymph was maintained at Alwar and Jaipur throughout the year. Six new dispensaries were opened (three in Bikaner, two in Jaipur, and one in Udaipur).

The mortality in the Ajmer Jail rose from 3 to 16 per mille, but in Native States it fell from 45 to 29, the lowest on record.

In this year the first reference is made to the employment and training of Lady Doctors. There were Lady Doctors at Alwar and Udaipur, who were paid by the Chiefs, and a third worked in connection with the United Presbyterian Mission at Ajmer.

One hundred and thirty-one major operations were done in Ajmer, and 837 in Native States. Thirty-three cases of cataract were done in the Jaipur State, and 31 at Ajmer.

## QUINQUENNIAL, 1886—1890.

Year.	ATTENDANCE.			VACCINATION.		
	Native States.	British Territory.	Total.	Vaccinators.	Vaccinations.	Percentage of success.
1886 . . .	399,721	38,425	438,152	139	157,204	95'66
1887 . . .	458,943	40,189	499,131	168	191,558	96'43
1888 . . .	549,121	37,761	586,882	183	201,016	96'63
1889 . . .	598,133	38,400	636,532	191	219,775	96'77
1890 . . .	648,879	36,480	685,359	202	240,937	97'70

## 1886.

The rainfall was six inches less than the average in Ajmer. In the Native States there was on the whole a plentiful fall, but owing to premature cessation of the monsoon, the precipitation was in some places small. As far as statistics show, there was a very severe and unprecedented outbreak in November of cholera at the Pushkar Lake, six miles to the north of Ajmer, where a great annual fair is held, it being a very holy place of pilgrimage. One hundred and eighty-five to 200,000 persons are said to have attended, being a far larger number than usual. The lake was very low, food bad, and the nights were very cold while the days were unusually hot. The registered mortality in Ajmer was 765. Many cases occurred in the neighbouring States between November 11th and December 11th, all traceable, it is alleged, to the fair. Small-pox was very fatal in Ajmer, 1,138 deaths being reported. In Native States 1,909 fatal cases were returned, of which 634 occurred in Bikaner.

As regards sanitation, the Ajmer tramway was in working order from March 15th. It was reported that a sanitary committee, with the Residency Surgeon as Secretary, was appointed at Udaipur, and that the Darbar had sanctioned Rs. 15,000 a year for sanitary improvements. The committee and budget sanction soon fell into abeyance.

There were fewer cases of vaccination, chiefly in the Jaipur State, where a change of system had been made. One hundred and twenty-three major operations were done at Ajmer and 742 in Native States. Forty-two cases of cataract were operated upon in the Mayo Hospital at Jaipur, and 38 in Kotah and Jhalawar. In Bikaner the number of surgical operations rose from 25 to 106, and in Jhalawar from 18 to 66, 51 of the latter being done in the last four months of the year. This was due to the presence of energetic operating

surgeons. At Alwar for several years there was a decline of surgical activity, which ended in the performance of 12 operations, all for reduction of dislocation. Surgeon-General Francis observes in a recent paper "that a surgeon who cannot operate has mistaken his career in coming to India, where a man is respected and valuable in proportion to his skill in that line and not as a physician." This is, judging by their practice, not the view of all medical officers.

The general attendance increased considerably.

There were now 88 dispensaries, as seven new institutions had been opened, *vis.*, four in Udaipur and three in Bikaner. In the jails the death-rate rose at Ajmer from 16 to 21 and in Native States from 29 to 34 per mille, which was one below the average of the past five years.

There are several circumstances which render the statistics, and especially the mortality in jails in Native States, somewhat doubtful :—

(1) Old men are often admitted when worn out. It has been stated that in some cases, when a number of persons have been suspected of highway robbery and such like crimes, the older men are given up by the younger ones, as their lives are least valuable, and they are provided for the rest of their days with a comfortable home. It is said that the sacrifice is not an unwilling one.

(2) Many persons are admitted in almost a moribund state.

(3) Sickness is lessened, on the other hand, by the general custom of pardon being given on birthday and other anniversaries of the Chiefs.

His Highness the Maharaja of Jaipur contributed a lakh of rupees to the Countess of Dufferin's Fund; medical work amongst women continued to advance.

#### 1887.

The rainfall at Ajmer was a little above the average.

In Native States it varied a good deal, being scanty in the west and plentiful in the east. The crops were good. Throughout the year the prices were high.

There were 384 fatal cases of cholera in Ajmer.

An epidemic also affected ten States from May 3rd to November 9th. Eight thousand and fourteen cases were reported, with 4,176 deaths. The mortality was at the rate of 82 per cent. Jaipur and Dholpur suffered very severely.

The water-works at Ajmer, which had been in abeyance, were recommenced.

Sanitary progress was made in many places, but not much had been done in the villages. Vaccination had much increased in numbers, especially in Marwar, Jaipur, and Mewar.

The attendance of sick in dispensaries was very much higher than in 1886. Five new dispensaries were opened (two in Bikaner and one each in Jaipur, Mewar, and Kotah).

Thakur Govind Singh, the premier Noble of the Jaipur State, in gratitude for surgical relief in his own person, started a dispensary at Chomu, an example which it was hoped many nobles would follow.

There was more malarial fever than usual.

Major operations rose in numbers in Ajmer from 168 to 174; and in Native States from 742 to 975.

In Ajmer the lens of the eye was extracted in 28, and in Jaipur in 61, and in Kotah-Jhalawar in 38, cases.

The death-rate in the Ajmer Jail rose from 21 to 25, and in Native States from 34 to 38 per mille, though excluding cholera it was 34 only.

1888.

The rainfall at Ajmer was a little above the average.

In Native States it varied much but was generally scanty. A few people died of cholera in Ajmer (13 only), and in Native States there were 1,205 cases reported, with 722 deaths, but only certain portions of Marwar and Sirohi were affected.

Small-pox was very fatal in Ajmer, but less so than in the previous year in Native States.

The Ajmer water-works were formally opened.

A sanitary railway on the south side of Jaipur proved very useful in removing filth and also foul earth which had accumulated for many years in the streets. The drainage of towns is often entirely changed by such accumulations, which often amount to many feet in depth.

The number of vaccinations increased and was especially conspicuous in Jaipur.

Nine new dispensaries were opened, *viz.*, one in Bikanir and four each in Mewar and Marwar.

There was 3 per cent. less malarial fever in Native States than usual. The major surgical operations in Ajmer were 141 in number, and in Native States 954.

The operations in Alwar rose from 23 to 66, another instance of the right man being in the right place.

The death-rate in the Ajmer Jail fell from 25 to 4 per thousand, showing in a small prison how great a difference is made by what ought to be called accidental deaths. In Native States the rate fell from 38 to 32 per mille. As illustrative of the truth of the remarks in 1887 may be mentioned the fact that 27 out of the men who died in the Jaipur Jail were over 60 years of age, and that prisoners were brought in in a moribund condition and died shortly afterwards.

The work in the hospitals for women increased.

1889.

During this year, 3'32 inches more than the average rainfall were registered in Ajmer, and in some Native States the fall was excessive. In Jodhpur the fall was light, as also in Bharatpur. In Jaipur, Udaipur, and Alwar, it was about as usual. Grain prices were cheaper than ordinarily, except in the western parts of Marwar, where failure of rain and a plague of locusts caused much privation.

Locusts, both in the young and fully developed stages, often prove very destructive in Rajputana, especially to the west of the Aravalli mountains.

There was a moderate amount of cholera in Ajmer.

With few exceptions all the Rajputana States also suffered, 13,900 cases with 6,894 deaths having been reported.

Alwar, Kotah, Bundi, and Dungarpur were most affected. The mortality from small-pox in Ajmer was large.

There were 1,680 deaths from that disease. It was also great from fevers; small-pox also prevailed in the Native States.

The number of vaccinations increased, principally in Marwar, where the establishment was very large and was supported in a great many instances by the Nobles.

There was not much to record as regards sanitation, though there was some attention paid to the subject.

Three new dispensaries were opened, *viz.*, one each in Alwar, Mewar, and Jaipur.

The attendance increased to 593,026, or 13 per cent. more in Native States than in 1888.

There were now 98 institutions. Ajmer showed 90 major operations, a falling off, and Native States 1,024, a considerable increase, principally in Jaipur, where the lens was extracted in 60 cases, and 22 litholapaxies were performed, with a total for all large operations of 226 in the Mayo Hospital. In Ajmer jail the death-rate was 7'10 per thousand, one man out of three who died having lived only 5½ hours after admission into the prison. In Native States the mortality increased from 32'68 to 37'88 per mille, and appeared to coincide with a great amount of disease amongst the free population.

A large new jail was opened at Jaipur, where the death-rate in the prisons at once fell and was 22'37 per 1,000, against an average of 57'38 in the 13 previous years.

New hospitals were being built for women.

1890.

The rainfall was nine inches below the average at Ajmer.

In Native States it was a little above the average.

There were 408 deaths from cholera in Ajmer out of 738 cases, and 2,338 in Native States out of 4,269 cases.

The disease is said to have first appeared at a fair in Kishangarh. Alwar suffered the most.

There was some improvement in sanitation.

The vaccinations increased in number in Native States by 9 per cent. and in Ajmer by 32 per cent.

Four new dispensaries were opened, *viz.*, one in Marwar, two in Alwar, and one in Kotah. In Ajmer the number of patients fell a little, but increased considerably in Native States. In Ajmer City 138, and in Native States 1,302, major operations were performed. The lens was removed in 41 cases of cataract in Ajmer, in 70 in Jaipur, in 77 in Bikaner, and in 28 in Kotah, and in smaller numbers in other places. The 77 operations in Bikaner were all done by a Hospital Assistant at the Reni dispensary. There were none in the main hospital at the Capital!

In the Ajmer Jail there was a death-rate of 7·83 and in Native States of 8·20, or, exclusive of cholera, of 40 per thousand.

A class for the training of *dhais* was opened at Jaipur for which many useful models were provided.

#### QUINQUENNIAL, 1891—1895.

Year.	ATTENDANCE.			VACCINATION.		
	Native States.	British Territory.	Total.	Vaccinators.	Vaccinations.	Percentage of success.
1891 . . .	674,870	41,730	716,600	204	246,458	97·91
1892 . . .	33,269	55,886	86,155	202	226,855	97·57
1893 . . .	803,502	60,076	863,578	209	255,646	97·75
1894 . . .	875,899	55,890	931,789	212	276,016	98·40
1895 . . .	932,537	55,517	989,054	227	315,853	98·44

#### 1891.

The rainfall at Ajmer was 8·30 inches below the average.

The City Lake was dry, and a supply was furnished by pipes from the Budh-Pushkar Lake which is six miles off.

In most of the Native States the fall was below the average. A prolonged and severe cholera epidemic prevailed in Ajmer; there were 923 cases with 532 deaths, and, in 11 Native States, of which Jhalawar and Marwar suffered most severely, there were 4,269 cases with 2,414 deaths.

In Ajmer the number of cases is fairly correct, but not so in Native States.

There was an increase of 5 per cent. in the vaccinations in Ajmer, and of 2 per cent. in the Native States.

Nine new dispensaries were opened in Native States, *viz.*, four in Kotah, two in Marwar, and one each in Mewar, Bikanir, and Karauli. Two were closed in Mewar.

In the Ajmer division 178 major operations were performed, and in Native States 1,436. The lens was extracted for cataract 329 times, *viz.*, 37 in Ajmer, 188 in Jaipur, 101 in Bikaner (of which 92 were done by the Hospital Assistant who performed so many in 1890), and lesser numbers in other places.

In the Ajmer Jail the death-rate rose from 7.83 to 27, and in Native States it fell from 42.09 to 33.70 per mille. The attendance in the hospitals for women increased. Surgeon-Major Pank referred to a fatal epidemic simulating cholera which occurred at Malpura, and which he attributed to the use of bad grain.

The writer has seen several such epidemics particularly at that place, where there is a foul tank which the people will not have cleansed, and which is perhaps as much to blame as the grain.

In other instances the deaths have been undoubtedly due to the latter cause. Grain is stored up for sale in periods of scarcity, and when it rots it is obliged to be sold, or the owner tries to sell it at a high rate.

The water-supply of Ajmer had for some time caused some anxiety, and, in order to meet the difficulty, several proposals were made. The Budh-Pushkar scheme answered for a time, but it was thought that it would be possible to make a new tank at the upper end of the valley of the Anasagar or City Lake.

#### 1892.

The rainfall was abundant everywhere, but, until the crops were gathered in there was great scarcity of food in most places. The year was extremely unhealthy, and famine, cholera, small-pox, and fevers of an unusually violent nature were prevalent. The mortality rose and the birth-rate fell. There were no less than 51,793 cases of cholera, of which 26,760 proved fatal. The disease occurred in all the States except Jaisalmer, but Marwar, Bikaner, Jaipur, and Alwar suffered most.

In Ajmer 4,692 cases and 2,352 deaths were recorded. Sanitation was attended to in seven of the large cities, and the subject of village conservancy was taken up at Alwar. The number of vaccinations fell off mainly in Marwar and Bikaner, and to a less degree in Jaipur, Kotah, and Tonk. Famine, cholera, emigration, and fever were quite sufficient to account for this. Eight new dispensaries were opened (three in Jhalawar, two in Kotah, two in Jaipur, and one in Jaisalmer).

The attendance of patients was more than a lakh larger than in 1891, the cases of malarial fever being 6 per cent. more than in that year. One hundred and six operations were done in the Ajmer Dispensary, of which 43 were for cataract. In Native States there were 2,011 important operations against 1,436, due to the large number of lenses removed in Jaipur, *viz.*, 574 (458 by Dr. Pank and 116 by Dr. Hendley).

The death-rate in the Ajmer Jail rose from 27 to 27.61 and in Native States from 33.70 to 41.70 per thousand. The new jails at Jaipur, Sirohi, Alwar, Tonk, and Kotah were in every respect satisfactory.

1893.

The rainfall throughout Rajputana was considerably above the average, except in Kotah and Bikaner.

Much damage to the crops was done by rats in the Western States, but on the whole they were good and grain was considerably cheaper.

The Ajmer vital statistics were fairly reliable, but in Rajputana generally were of little value. The year was comparatively free from cholera, there having been only 544 reported cases with 314 deaths, of which three occurred in Ajmer. The town of Ajmer was now in possession of a good supply of water from the Foy Sagar. The number of vaccinations increased from 10,917 to 12,085 cases in Ajmer, and from 215,771 to 241,841 in Native States. The Western States and Jaipur and Alwar showed the best reports.

Three new dispensaries were opened, *viz.*, one each in Marwar, Bikaner, and Sirohi.

The attendance of patients rose throughout. There were 164 major operations in the Ajmer Dispensary (231 in the Division) of which 43 were for cataract. In Native States 2,077 important and 43,913 minor operations were done : 438 of these were for cataract, of which 225 were performed in the Mayo Hospital at Jaipur.

Thirty out of thirty-two litholapaxies were done in the same institution.

The death-rate in the Ajmer Jail fell from 27·61 to 11·87, and in Native States from 41·7 to 32·03 per mille. The Agent to the Governor General observed that on the whole there had been much improvement of late years in Rajputana. There was very little to remark regarding female medical aid.

1894.

The rainfall in Rajputana, though less than last year, was still above the average.

In some parts the crops suffered from failure of the late rains, but otherwise were generally good, and the prices of grain fell to the rates which prevailed before the scarcity of 1891. The year generally was a healthy one. There was no cholera.

In some of the States there was much progress in sanitation. Vaccination improved, showing increase in the number of operations.

There were now 144 medical institutions in the Province, six new dispensaries having been opened, *viz.*, two in Mewar, one in Marwar, one in Tonk, and two in Bharatpur. The attendance increased considerably in Native States, having reached the figure of 13,156 in-patients and 886,630 out-door patients. Malarial fevers were less prevalent than in the last year.

The system of selling quinine at the Post Offices was introduced. The number of major operations fell from 231 in Ajmer-Merwara to 171, and in Native States from 2,077 to 1,932.

The Ajmer Jail death-rate rose from 11·87 to 18·01, and fell in the prisons of Native States from 32·03 to 28·29 per mille.

Female education was so backward in the Native States that it has proved most difficult to get pupils to attend the Agra Medical School.



1895.

The rainfall in Ajmer was 2'88 inches above the average. In Native States it was considerably below it. The Government of India, in reviewing the report for 1891, considered that "improvement could be made in the vital statistics which are received from Native States if Assistant Surgeons or Hospital Assistants are appointed, as opportunities offer, to the inspecting staff. By this means the States also would acquire an agency capable of extending vaccination, of aiding on occasions of epidemic disease, and of employment generally as district sanitary officers."

Such a scheme was in practical use in Jaipur from January 13th, 1895, and the new Department was put in charge, under the Superintendent of Dispensaries, of an Assistant Surgeon, who underwent a short training in the bacteriological laboratory of Professor Hankin at Agra. The suggestions of the Government of India indicated a very important advance. Two thousand three hundred and fifty-four cases of cholera with 1,338 deaths were reported in Rajputana. By far the larger number occurred in Dungarpur and Partabgarh. The Foy Sagar still afforded an adequate supply of water to Ajmer.

A brief description was given of the sanitary condition of the large Capitals. There was a large increase in the number of vaccinations. The average number of operations performed by each man was 1,395.

Four new dispensaries were opened, *viz.*, one each at Kishangarh, Bundi, Dungarpur and Kushalgarh.

A new General Hospital was brought into use in place of the dispensary.

The sale of quinine at Post Offices was continued as an experiment, but it was still uncertain whether it would be worth continuing it.

In Jaipur, Hospital Assistants were supplied with elementary works on veterinary practice, and the knowledge thus derived often proved of value to the peasants. The attendance of patients increased as did important surgical operations.

In the Ajmer Dispensary the number of eye-operations rose with a change of surgeons from 18 to 159.

In the States 2,583 major operations were done, as compared with 1,932 in 1895. The increase was chiefly in Jaipur, where 1,093 were performed against 668 in 1894; of these 508 were for cataract.

The mortality in the Ajmer Jail rose from 18'01 to 45'35, and in Native States prisons it fell from 28'29 to 28'15. The great increase in the first named was due to a fever, probably of relapsing type.

From March 29th, the appointment of Residency Surgeon and Chief Medical Officer was abolished, and the supervision of the medical institutions in Rajputana was made over to Brigade-Surgeon-Lieutenant-Colonel Hendley as an additional charge, under the title of Administrative Medical Officer. He being on leave did not take over charge until June 25th.

1896.

Year.	ATTENDANCE.			VACCINATION.		
	Native States.	British Territory.	Total.	Vaccinators.	Vaccinations.	Percentage of success.
1896 . . .	926,694	57,569	984,263	247	290,474	98.51

The rainfall in Ajmer was 5 inches above the average. In Native States it was unfavourably distributed, and in the West as well as in the Eastern States was below the average, in consequence of which many crops failed and the people in some places had to migrate with their cattle in search of food for themselves and of fodder for the latter.

Small-pox was unusually prevalent and was especially fatal in Ajmer-Merwara. There were, however, fewer deaths from fever, dysentery, and diarrhoea, and cholera was less prevalent than in the previous year in the latter division, but in Native States there was an increase under all the above heads. A severe outbreak of cholera originated in April at Nawa on the Sambhur Lake, and in May 620 deaths out of 826 cases occurred in the city of Udaipur.

Sanitation continued to improve in Ajmer, Jaipur, Jodhpur, Udaipur, Kotah, Bikaner, Karauli, and Alwar, but in some of the other large Capitals it was still defective. Village sanitation, though in a backward condition, was receiving attention, and in Jaipur a careful inspection and sanitary survey was being made by two inspectors, who were visiting the villages systematically for this purpose.

Vaccination for various reasons fell off in numbers, even in Marwar, which had the largest record.

The average daily attendance of in-door patients rose a little: that of out-door patients fell.

The total attendance of in-door patients was somewhat lower, but there was an increase of out-door patients.

Plague was referred to at length in the report, although only two cases occurred in the year.

There was very little sickness in the jails and the mortality was low.

Owing to a change in system in the classification of surgical operations, it is difficult to compare the work which was done in 1896 with that of previous years.

Jaipur as usual headed the list, where the Superintendent himself performed 1,457 major operations, of which 985 were on the eye.

Quinine was extensively sold at the Post Offices. Brigade-Surgeon-Lieutenant-Colonel Hendley was Administrative Medical Officer, in addition to his duties of Residency Surgeon, Jaipur. Surgeon-Lieutenant-Colonel Adams wrote the report as Officiating Administrative Medical Officer in part of 1897.

# CHAPTER

## STATISTICS AND DEDUCTIONS FROM

### TABLE III.—Showing the average number per mille of each year of the principal diseases

Divisions.	DISTRICTS OR STATES.	Small-pox.	Cholera.	Dysentery.	Malarial fevers, ague and remittent.	Syphilitic affections.	Gonorrhea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
CENTRAL.	Ajmer Merwara . . .	8'65	123'75	907'85	7228'90	502'30	551'90	356'20	243'35	1542'70	106'10	50'85	4746'55
	Average per 1,000 of Grand Total . . .	0'20	2'93	21'53	171'43	21'40	13'09	8'45	5'77	36'58	3'94	1'21	112'50
EASTERN STATES.	Dholpur . . .	8'25	111'20	505'40	5078'70	263'80	182'25	49'15	59'60	1114'70	35'15	26'50	2386'70
	Bharatpur . . .	3'80	79'10	184'45	13499'75	1024'80	650'80	150'40	182'80	4254'55	67'30	77'55	6678'30
	Karauli . . .	1'40	86'20	335'15	2930'35	118'55	81'15	23'05	53'40	600'90	14'05	9'25	3380'55
	Alwar . . .	3'70	104'05	643'65	7388'50	663'70	264'50	95'10	358'90	1316'80	133'60	75'35	4213'85
	Jalpur . . .	29'35	151'45	2476'00	16963'20	2830'90	1863'50	427'65	1317'45	5661'95	235'00	127'35	8074'80
	TOTAL . . .	46'50	532'00	5808'65	45860'50	4901'75	3042'20	745'35	1972'15	12948'90	485'70	316'00	24734'20
	Average per 1,000 of Grand Total . . .	0'17	1'93	21'13	166'83	17'83	11'07	2'71	7'17	47'10	1'77	1'15	89'97
NORTHERN STATES.	Bikaner . . .	6'85	92'00	741'55	5535'95	902'45	506'20	416'95	466'65	1565'85	84'25	57'70	965'25
	Average per 1,000 of Grand Total . . .	0'22	3'00	24'18	180'51	29'43	16'50	13'40	15'82	51'06	2'75	1'88	31'47
WESTERN STATES.	Jodhpur . . .	4'10	321'85	876'10	6389'40	731'20	542'45	315'80	465'55	1777'10	57'70	53'65	2251'20
	Sirohi . . .	1'40	4'05	146'50	858'35	107'55	79'65	29'10	13'20	150'05	14'45	6'50	225'85
	TOTAL . . .	5'50	325'90	1022'60	7247'75	838'75	622'10	344'90	478'75	1927'15	72'15	60'15	2477'05
	Average per 1,000 of Grand Total . . .	0'13	7'58	23'78	168'57	19'52	14'47	8'02	11'13	44'82	1'68	1'40	57'61
SOUTHERN STATES.	Tonk . . .	2'55	19'05	229'50	1595'70	279'85	206'30	64'15	91'05	622'20	48'55	21'75	799'00
	Shahpura . . .	24'85	53'45	54'35	697'55	102'20	63'35	42'60	71'65	236'45	1'95	6'30	917'70
	Kotah . . .	4'70	106'95	522'55	3281'95	494'05	226'65	113'20	266'70	1011'60	33'96	72'70	1312'35
	Jhalawar . . .	7'80	93'35	788'85	4407'95	493'60	305'85	99'00	247'70	848'55	39'95	40'30	2067'80
	Mewar . . .	5'00	125'75	1218'75	10783'10	1178'65	669'10	409'15	879'15	1792'00	89'85	36'56	2906'60
	Perlabgarh . . .	6'05	19'30	211'95	1448'40	147'55	98'85	479'40	29'05	266'05	5'10	7'65	1253'45
	Banswara . . .	1'20	35'35	253'35	1916'90	116'10	95'70	298'75	43'70	256'80	14'70	8'85	2032'95
	TOTAL . . .	46'15	458'20	3779'30	24122'55	2812'00	1665'60	1506'25	1629'00	5031'65	239'05	194'05	11280'85
	Average per 1,000 of Grand Total . . .	0'34	3'35	23'97	176'33	20'55	12'18	11'01	11'91	35'79	1'75	1'42	82'52
GRAND TOTAL . . .		112'65	1531'55	11759'95	90005'65	10337'25	6388'20	3353'65	4789'90	23018'25	1047'25	678'75	44212'90
	Average per 1,000 of Grand Total . . .	0'22	2'99	22'29	170'61	19'63	12'10	6'38	9'03	43'63	1'93	1'29	83'80

## VII.

## THEM AND FROM THE REPORT IN CHAPTER VI.

*treated in the Medical Institutions of Rajputana from 1877 to 1896, or for twenty years.*

Diseases of the ear.	Diseases of the throat.	Respiratory affections.	Diarrhoea.	Diseases of the liver.	Diseases of the spleen.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
1737'30	219'55	2337'35	976'90	140'30	417'55	3413'40	5728'70	299'05	1425'95	33565'15	8503'70	42165'85
21'20	5'20	55'24	23'17	3'33	10'14	80'05	135'85	7'08	33'82	795'97	204'00	1000'00
620'40	16'25	2032'90	461'05	59'55	195'25	1708'65	3702'60	8'10	277'40	18903'35	3012'50	21916'05
2116'95	185'20	5454'35	2325'85	228'95	816'65	7282'70	12151'85	71'80	916'45	60378'60	16924'75	77303'35
935'20	15'55	1022'00	343'75	51'10	154'50	1784'10	1814'95	91'35	322'50	14170'60	2727'90	16858'5
1516'40	97'05	2464'19	861'20	347'45	340'70	4194'35	3423'80	63'35	803'25	29573'35	7017'95	36691'30
4675'10	285'40	7820'70	3182'05	528'05	1401'00	16723'00	13217'55	462'90	2555'05	91109'50	30981'75	122091'25
10255'15	599'45	19004'25	7173'90	1215'10	2908'10	31692'85	34310'75	697'50	4974'65	214235'60	60564'85	274900'45
37'34	2'18	69'13	26'10	4'42	10'58	115'20	124'81	2'54	18'10	779'37	220'68	1000'00
792'20	81'40	2031'35	756'60	135'30	285'75	3088'25	3368'85	131'75	972'75	22929'85	7738'75	30668'60
25'83	2'65	66'23	24'67	4'41	9'32	99'07	109'85	4'30	31'72	747'67	252'83	1000'00
2331'55	65'45	2021'50	931'70	151'15	402'95	5214'15	3550'25	526'65	1277'00	30253'45	8621'45	35879'90
94'70	28'95	270'25	185'35	34'50	52'95	351'65	614'40	14'35	109'30	3403'05	713'70	4116'75
2426'25	91'40	2291'75	1117'05	185'05	455'90	5575'80	4164'65	541'00	1286'30	33661'50	9335'15	42996'65
56'43	2'20	53'30	25'98	4'31	10'60	129'68	95'86	12'59	32'24	782'89	217'11	1000'00
908'65	21'70	882'60	293'10	73'60	169'65	2135'05	2739'65	50'25	817'35	12073'25	3885'90	15959'15
294'90	50'55	325'65	124'90	16'00	39'85	520'50	1013'15	29'80	353'80	5021'50	1200'30	6221'80
662'30	24'15	1199'90	416'35	93'15	319'45	2481'65	1970'35	47'55	451'55	15118'45	4033'50	19152'00
696'80	74'25	1886'30	619'85	134'15	354'85	3177'35	1787'25	105'50	577'30	18859'00	5239'50	21098'50
1020'80	86'30	3694'75	1503'65	187'25	687'00	5831'00	5772'10	63'85	1458'70	45995'20	10173'85	51169'05
267'40	9'90	465'70	157'50	35'45	103'25	934'85	679'20	12'85	141'40	6774'30	1278'05	8653'35
457'20	6'25	933'15	411'15	39'75	100'85	1264'55	1212'20	55'40	276'55	9531'40	2334'35	22165'75
4913'45	254'30	9388'05	3526'50	579'35	1774'90	16344'95	15172'90	265'20	4065'65	108573'10	25145'50	135818'60
35'91	1'86	68'62	25'77	4'23	12'97	219'46	110'91	2'67	29'71	794'29	205'71	1000'00
20134'35	1249'10	35082'75	13550'95	2255'70	5852'20	60065'25	62746'83	2031'50	12326'30	413055'30	114487'95	527553'15
38'17	2'37	66'50	25'69	4'28	11'09	113'85	118'94	3'80	24'31	782'93	217'02	1000'00

TABLE IV.—Table showing the total number of the principal diseases

Divisions.	DISTRICTS O. STATES.	Small-pox.	Cholera.	Dysentery.	Malarial fevers, ague and remittent.	Syphilitic affections.	Gonorrhea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
CENTRAL.	Ajmer Mer- wara . . .	173	2,475	18,147	144,578	18,046	11,038	7,124	4,867	30,854	3,322	1,017	94,931
	Average per 1,000 of Grand Total . . .	0'20	2'93	21'53	171'43	21'40	13'09	8'45	5'77	36'58	3'94	1'20	112'56
EASTERN STATES.	Dholpur . .	165	2,224	10,108	101,574	5,276	3,645	983	1,192	22,294	703	530	47,734
	Bharatpur . .	76	1,582	36,969	269,995	20,496	13,016	3,008	3,656	85,091	1,346	1,551	133,566
	Karauli . .	28	1,724	6,703	58,607	2,371	1,623	461	1,068	12,018	293	185	67,611
	Alwar . . .	74	2,081	12,873	147,770	13,274	5,290	1,992	7,178	26,336	2,672	1,507	84,277
	Jaipur . . .	587	3,029	49,520	330,254	56,618	37,270	8,553	26,340	113,239	4,700	2,543	161,495
	TOTAL . . .	930	10,640	116,173	917,210	98,035	60,846	14,507	30,443	258,978	9,714	6,320	494,681
	Average per 1,000 of Grand Total . . .	0'17	1'93	21'13	166'83	17'83	11'07	2'71	7'17	47'10	1'77	1'15	80'97
NORTHERN STATE.	Bikaker . .	137	1,840	14,831	110,719	18,049	10,124	8,219	9,331	31,317	1,685	1,154	19,305
	Average per 1,000 of Grand Total . . .	0'22	3'00	24'18	180'51	29'43	16'50	13'40	15'22	51'06	2'73	1'88	31'47
WESTERN STATES.	Jodhpur . .	82	6,437	17,522	127,788	14,624	10,849	6,313	9,316	35,542	1,154	1,073	45,024
	Sirohi . . .	28	81	2,930	17,167	2,151	1,593	582	264	3,001	289	130	4,517
	TOTAL . . .	110	6,518	20,452	144,955	16,775	12,442	6,895	7,573	38,543	1,443	1,203	49,541
	Average per 1,000 of Grand Total . . .	0'13	7'58	23'78	168'57	19'51	14'47	8'02	11'13	44'82	1'68	1'40	57'61
SOUTHERN STATES.	Tonk . . .	51	381	4,590	31,934	5,591	4,120	1,283	1,821	12,444	971	435	15,980
	Shahpura . .	497	1,069	1,087	15,951	2,644	1,267	832	1,434	4,729	39	126	18,354
	Kotah . . .	94	2,339	110,451	65,639	9,881	4,533	2,264	5,314	20,232	770	1,454	26,247
	Jhalawar . .	156	1,067	15,777	88,159	9,872	6,117	1,980	4,954	16,971	799	866	41,356
	Mewar . . .	100	2,515	24,375	215,662	23,573	13,382	8,183	17,583	35,840	1,797	730	58,122
	Pertabgarh .	1	386	4,230	28,958	2,911	1,977	9,588	581	5,321	102	153	25,669
	Banswara . .	24	707	5,067	35,338	2,322	1,914	5,975	874	5,136	294	177	40,659
	TOTAL . . .	924	9,164	65,586	482,651	56,240	33,316	30,125	32,580	100,673	4,771	3,881	235,797
	Average per 1,000 of Grand Total . . .	0'34	3'35	23'97	176'38	20'55	12'18	11'01	11'91	36'79	1'75	1'42	82'52
GRAND TOTAL . .		2,273	30,637	235,192	1,800,113	207,143	127,764	67,273	95,798	460,355	20,945	13,575	884,258
	Average per 1,000 of Grand Total . . .	0'21	2'20	21'29	170'61	19'63	12'11	6'38	9'08	43'63	1'98	1'29	83'81

*treated in the different States of Rajputana from 1877 to 1896, or for 20 years.*

Diseases of the ear.	Diseases of the heart.	Respiratory affections.	Diarrhoea.	Diseases of the liver.	Diseases of the spleen.	Diseases of the skin.	Ulcers, and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
34,746	4,391	47,347	19,538	2,806	8,551	68,268	114,574	5,981	28,519	671,303	172,074	843,377
41'20	5'21	56'14	23'17	3'33	10'14	80'95	135'85	7'09	33'81	795'97	204'03	1,000'00
12,408	3 25	40,658	9,221	1,191	3,905	24,173	74,052	162	5,548	378,071	60,250	438,321
48,339	3,704	109,291	46,517	4,579	16,333	145,055	243,037	14,336	18,329	1,207,572	338,495	1,546,067
18,724	311	20,440	6,875	1,022	3,090	35,082	36,299	1,827	6,450	283,412	54,558	337,970
32,328	1,941	53,282	17,224	6,940	6,814	83,887	68,476	1,267	16,065	593,467	140,3 9	733,826
93,504	5,708	156,414	63,641	10,561	28,020	334,460	264,351	9,258	52,101	1,822,150	619,635	2,441,825
205,303	11,989	380,085	143,478	24,302	58,162	633,857	666,215	13,950	99,493	4,284,712	1,213,297	5,408,009
37'34	2'18	69'13	26'10	4'42	10'58	115'29	124'81	2'54	18'10	779'31	220'68	1,000'00
15,844	1,628	40,627	15,132	2,706	5,715	60,765	67,377	2,635	19,455	458,597	154,775	613,372
25'33	2'65	66'23	24'67	4'41	9'32	99'07	109'85	4'20	31'73	747'67	252'33	1,000'00
46,681	1,309	40,430	18,634	3,023	8,059	104,283	71,005	10,533	25,540	605,169	172,129	777,595
1,894	579	5,105	3,107	690	1,059	7,233	12,283	287	2,186	68,061	14,274	82,335
48,525	1,888	45,835	22,311	3,713	9,118	111,516	83,268	10,820	23,725	673,220	186,703	859,923
56'43	2'20	53'30	25'08	4'22	10'60	129'68	96'86	12'58	32'24	782'89	217'11	1,000'00
18,173	464	17,652	5,862	1,472	3,393	42,701	54,763	1,005	16,347	241,465	77,718	319,183
5,898	611	6,513	2,498	380	797	10,410	20,263	596	7,076	100,430	24,006	124,436
13,240	483	23,998	8,327	1,863	6,389	49,633	39,407	951	9,031	300,369	80,671	381,040
13,910	1,485	27,726	12,397	2,683	7,097	63,547	35,745	2,110	11,546	377,120	124,798	491,918
22,535	1,720	73,895	30,073	3,745	13,740	116,620	115,442	1,277	26,074	819,904	293,477	1,023,381
5,348	198	9,314	3,150	709	2,665	18,697	13,584	2 7	2,828	135,486	25,561	161,047
9,144	125	18,663	6,223	795	2,017	25,291	24,244	1,108	5,521	196,628	46,687	243,315
98,260	5,086	187,761	70,530	11,587	35,498	32 869	303,478	7,504	81,333	2,173,462	562,910	2,736,372
35'91	1'86	68'62	25'77	4'23	12'07	119'46	110'91	2'67	29'72	794'29	205'71	1,000'00
402,687	24,982	701,655	201,019	45,114	117,044	1,201,305	1,254,937	40,690	256,525	8,251,304	2,289,759	10,551,063
38'16	2'27	65'50	25'69	4'28	11'00	113'88	118'94	3'86	24'31	781'68	217'32	1,000'00

TABLE V.—*Summary of Table III showing average numbers per thousand of the principal diseases in the different districts in Rajputana.*

DISEASE.	Central.	Eastern.	Northern.	Western.	Southern.	TOTAL.
Malarial affections . . . . .	171'43	166'83	180'51	168'57	176'38	170'61
Ulcers and abscesses . . . . .	135'85	124'81	109'85	96'86	110'91	118'94
Skin diseases . . . . .	80'95	115'29	99'07	129'68	119'46	113'86
Diseases of the eye . . . . .	112'56	89'97	31'47	57'61	82'52	83'80
Respiratory affections . . . . .	56'14	69'13	66'23	53'30	68'62	66'50
Rheumatic affections . . . . .	35'58	47'10	51'06	44'82	36'79	43'63
Diseases of the ear . . . . .	41'20	37'34	25'83	56'43	35'91	38'17
Diarrhœa . . . . .	23'17	26'10	24'67	25'98	25'77	25'69
Injuries . . . . .	33'82	18'10	31'72	32'24	29'72	24'31
Dysentery . . . . .	21'53	21'13	24'18	23'78	23'97	22'29
Syphilitic affections . . . . .	21'40	17'83	29'43	19'51	20'55	19'63
Gonorrhœal affections . . . . .	13'09	11'07	16'50	14'47	12'18	12'10
Spleen diseases . . . . .	10'14	10'58	9'32	10'61	12'97	11'09
Debility and old age . . . . .	5'77	7'17	15'22	11'13	11'91	9'08
Worms . . . . .	8'45	2'71	13'40	8'02	11'01	6'36
Liver diseases . . . . .	3'33	4'42	4'41	4'32	4'23	4'28
Poisons . . . . .	7'08	2'54	4'30	12'58	2'67	3'85
Cholera . . . . .	2'93	1'93	3'00	7'58	3'35	2'90
Heart diseases . . . . .	5'20	2'18	2'65	2'20	1'86	2'37
Tubercular diseases . . . . .	3'94	1'77	2'75	1'68	1'75	1'93
Leprosy . . . . .	1'21	1'15	1'88	1'40	1'92	1'29
Small-pox . . . . .	0'20	0'17	0'22	0'13	0'34	0'22

TABLE VI.—*Order of prevalence of diseases in each district in Rajputana.*

DISEASE.	Central.	Eastern.	Northern.	Western.	Southern.	ORDER OF PREVA- LENCE FOR THE PRO- VINCE.
Malarial affections . . . . .	1	1	1	1	1	1
Ulcers and abscesses . . . . .	2	2	2	3	3	2
Skin diseases . . . . .	4	3	3	2	2	3
Diseases of the eye . . . . .	3	4	7	4	4	4
Respiratory affections . . . . .	5	5	4	6	5	5
Rheumatic affections . . . . .	7	6	5	7	6	6
Diseases of the ear . . . . .	6	7	9	5	7	7
Diarrhœa . . . . .	9	8	10	9	9	8
Injuries . . . . .	8	10	6	8	8	9
Dysentery . . . . .	10	9	11	10	10	10
Syphilitic affections . . . . .	11	11	8	11	11	11
Gonorrhœal affections . . . . .	12	12	12	12	13	12
Spleen diseases . . . . .	13	13	15	15	12	13
Debility and old age . . . . .	14	14	13	14	14	14
Worms . . . . .	16	16	14	16	15	15
Liver diseases . . . . .	19	15	16	18	16	16
Poisons . . . . .	15	17	17	13	18	17
Cholera . . . . .	20	19	18	17	17	18
Heart diseases . . . . .	17	18	20	19	20	19
Tubercular diseases . . . . .	18	20	19	20	21	20
Leprosy . . . . .	21	21	21	21	19	21
Small-pox . . . . .	22	22	22	22	22	22



The registration of diseases having been shown differently in the returns at different periods, the statements could only be made to include for the full term of twenty years the principal diseases which have been given in the tables.

Malarial and splenic affections account for 181.70 per mille of the whole of the cases treated, and the difference in the different districts is hardly sufficient to be worth noting, though perhaps the large proportion in the dry climate of Bikaner, and the smaller proportion in the more moist eastern section, are rather contrary to the general opinion.

Ulcers and abscesses, including whitlows, account for 118.94 per mille, and diseases of the skin for 113.86. The former class seems most prevalent in the Central and Eastern Divisions, and the latter is especially frequent in the Western States, whether owing to the want of water for cleansing purposes or not it is impossible to decide. Diseases of the eye are admitted in largest numbers in the Central, Eastern, and Southern Districts, but in very small proportion in the Northern. They show in all the former sections the third or fourth in order of admissions, which is not surprising when the conditions of life of the people, for example, exposure to glare and frequent duststorms, and the close huts in which they live, are taken into consideration. Moreover, flies carry disease from one to another particularly in this affection, and in children, it is not unusual to see their faces and eyes covered with these insects which they do not even attempt to drive off.

Respiratory affections were less frequent in the West of Rajputana than in other divisions, but they are far more fatal than is generally supposed. In a paper which I read before the first Indian Medical Congress, I stated that about 33 per cent. of most of the dead bodies which I had examined showed signs of recent or old diseases of the respiratory organs, nor is this surprising when we consider the conditions of life of the people. They are exposed to great changes of temperature and humidity, are imperfectly clad, and are careless as regards wearing damp clothing. Moreover, their huts are small and ill-ventilated, and many of them are badly nourished. Exposure in railway journeys in the cold season in third class carriages, some of which have no glazed windows, is also, I think, an exciting cause of respiratory disorders.

The form of pneumonia from which the people suffer is of the asthenic type, and, if taken in time, recovery in the great number of cases is almost certain, if good food and stimulants are given. If servants are supplied with warm clothing in the winter, especially when they are taken into camp, the amount of sickness amongst them is greatly diminished, otherwise they suffer greatly. This is perfectly true of the whole population. There is one peculiar habit in certain castes and classes in North India which is very injurious, *viz.*, the habit of sitting naked or nearly so for long periods in draughty latrines. The mortality amongst children from respiratory disorders is terrible.

Rheumatic affections are more common in the north, and least so in Ajmer and the south. It is in such ailments that opium is so largely used as a domestic remedy, and apparently with such good results, as many a man is enabled by the use of it to perform his duties, who would otherwise be a useless cripple. The muscular variety is most common. Acute rheumatism is rare in my experience.

Diseases of the ear are returned in great excess from the west and in less than half the proportion from the north. This is not easy to explain.

Diarrhoea gave only 25·69 per mille of the total admissions and varied very little in the different sections. Cholera cases amounted to only 2·90 per thousand, but this disease is not often treated in dispensaries. A similar statement is true also of small-pox. Epidemics of both disorders are soon over and no time is given for attendance at a dispensary. Moreover, in small-pox the people believe that the disease runs a natural course, and that treatment is of little use. The effects of vaccination are, however, now becoming everywhere apparent, and those who most oppose the operation are not unfrequently convinced when too late, by the fate of their own children and the escape of those of their neighbours, of their error in neglecting vaccination.

The proportion of cases of dysentery was everywhere much about the same, varying from 24·18 in the north to 21·13 in the east. The Northern States show a much greater prevalence of both classes of venereal disorders than other parts of the Province, and so do cases of worms, and admissions for debility and old age.

No less than 12·58 per mille of the cases treated in the west were due to poisons, the average for all Rajputana being only 3·85. This cannot be yet explained.

Diseases of the liver and of the heart are comparatively infrequent; so are also tubercular affections, though cases of phthisis are, relatively to other respiratory diseases, not uncommon.

I have met with some cases of very rapidly fatal tuberculosis. Leprosy accounts for 1·29 per mille of all the cases,—a small number, as nearly all persons who are affected with this disease are sure to come sooner or later under observation.

Table VI shows how very little variation there is in the different districts from the average order of occurrence of diseases from the total for the Province. It may be taken, therefore, that the deductions from the figures and the figures themselves are fairly correct.

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*Statement showing Surgical Operations performed in the Medical Institutions of Rajputana from 1878 to 1895 under the old, and in 1896 under the new, classification.*

NAMES OF OPERATIONS.	1876.		1877.		1878.		1879.		1880.		1881.		1882.		1883.		1884.		1885.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
All tumours . . . . .					75	2	59	1	46	1	80	1	87	1	86	3	95	1	112	2
Removal of foreign bodies . . . . .					15	1	18	6	15	...	16	...	17	2	20	1	27	1	34	2
Operations on the eye—																				
Iridectomy . . . . .					3		2		3		7		3		9		60		13	
Extraction of the lens . . . . .					11		35		20		39		43		45		46		74	
All others of the eye . . . . .					6		5		11		9		6		11		18		27	1
Operations on the ear . . . . .									1		...		...		...		...		...	
" on the nose . . . . .							2		3		1		4		3		1		3	
" on other parts of head and face including the mouth.					2		...		2		3		...		4		...		...	
Operations on circulatory system . . . . .											...		...		...		...		...	
" on arteries . . . . .							2		...		1		...		...		...		...	
" on the respiratory organs . . . . .							...		...		...		...		...		...		...	
" on the digestive organs . . . . .							32		49		50		35		41		43		67	7
" for hernia . . . . .							3		...		2		...		1		...		1	
" on the lymphatic organs . . . . .							...		...		...		...		...		...		...	
Operations on the urinary organs—											...		...		...		...		...	
Lithotomy . . . . .					26	4	37	3	53	5	64	4	57	7	65	4	75	5	65	8
Litholapaxy . . . . .					1		...		1		3		...		2		...		...	
All others . . . . .					...		6		10		7		5		11		6		7	1
Operations on the male generative organs—											...		...		...		...		...	
Penis . . . . .					7		...		1		5		4		4		5		1	
Scrotum and testis . . . . .					...		...		2		...		...		1		...		...	
All others . . . . .					...		1		3		6		3		4		5		...	
Operations on the female generative organs . . . . .											...		...		...		...		...	
Obstetric operations . . . . .							...		1		...		...		...		...		...	
Operations on the breast . . . . .											...		...		...		...		...	
" on the organs of locomotion (bones)					29	1	34	1	24	1	26		48	1	58	3	66	2	74	4
" on joints . . . . .					102		98		117		130		162		131		133		149	
" on trusses, tendons, fasciae, and bursa					3		2		1		4		1		3		1		3	
" on connective tissues . . . . .							...		...		...		...		...		...		...	
Amputation at shoulder joint . . . . .							1		1		1		1		1		10		...	
" of forearm . . . . .					2		5		5		4		4		6		14		10	
" of arm . . . . .					1		5		4		9		6		11		14		3	
" of hand . . . . .					9		11		2		1		...		2		...		...	
" of thigh . . . . .					8		3		4		9		...		1		10		...	
" of leg . . . . .					14		22		15		27		17		22		12		9	2
" of foot . . . . .					5		3		6		5		9		2		6		10	1
All other amputations . . . . .					2		7		7		13		14		16		9		8	
Operations not classified . . . . .							...		...		...		...		...		...		...	
TOTAL . . . . .					361	18	393	23	416	20	529	21	535	24	567	18	653	18	701	30
Minor operations . . . . .					14,515	...	15,937	...	17,327	...	18,706	...	20,655	...	20,286	...	21,616	...	27,669	...
GRAND TOTAL . . . . .					14,876	18	16,330	23	18,743	20	19,235	21	21,190	24	20,853	18	22,269	18	28,370	30

Statement showing Surgical Operations performed in the Medical Institutions of Rajputana from 1878 to 1895 under the old, and in 1896 under the new, classification—concluded.

NAMES OF OPERATIONS.	1886.		1887.		1888.		1889.		1890.		1891.		1892.		1893.		1894.		1895.		TOTAL 18 YEARS.		1896.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
All tumours	133	7	164	2	228	5	195	1	240	1	242	2	203	1	263	...	256	3	300	6	2,864	39	581	2
Removal of foreign bodies	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Opening of abscesses	50	...	99	2	91	...	123	...	140	3	124	3	150	...	204	4	229	3	358	1	1,736	32	1,045	2
Operations on the eye—	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Iridectomy	30	...	47	...	16	...	19	...	45	...	62	...	168	...	175	...	102	...	188	...	955	...	190	...
Extraction of the lens	98	...	133	...	103	...	142	...	244	...	390	...	721	...	481	...	428	...	792	...	3,854	...	1,259	...
All others of the eye	31	...	54	...	37	...	21	...	54	...	40	...	166	...	153	...	160	...	180	...	989	...	511	...
Operations on the ear	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
on the nose	4	...	5	...	12	...	6	...	17	...	7	...	24	...	29	...	28	...	43	...	191	...	2,171	...
on other parts of head and face includ-	1	...	5	...	9	...	13	...	6	...	4	...	5	...	18	...	17	...	10	...	103	...	15,568	2
ing the mouth.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Operations on circulatory system	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
on arteries	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
on the respiratory organs	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
on the digestive organs	59	...	93	2	123	8	92	5	126	7	126	9	134	9	198	8	159	2	359	2	1,620	95	241	...
for hernia.	1	...	2	...	5	...	2	...	6	...	3	...	1	...	1	...	4	...	3	...	35	...	12	...
on the lymphatic organs	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Operations on the urinary organs—	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lithotomy	81	7	92	8	82	6	87	4	82	7	84	7	80	7	116	12	101	4	102	7	1,349	109	81	7
Lithotripsy	1	...	...	...	11	2	37	2	24	4	12	2	18	...	34	...	3	...	33	1	203	16	57	3
Litholapaxy	...	...	...	...	23	...	23	...	26	2	26	1	26	1	32	3	27	1	36	...	299	14	2,815	1
All others	16	1	11	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Operations on the male generative organs—	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Penis	3	...	8	...	10	...	5	...	9	...	8	...	6	...	13	2	5	...	7	...	101	2	...	...
Scrotum and testis	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
All others	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Operations on the female generative organs	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Obstetric operations	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Operations on the breast	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
on the organs of locomotion (bones)	99	4	89	3	76	2	79	3	80	3	71	3	64	...	88	3	84	1	107	3	1,196	38	956	7
on joints	197	...	218	1	228	2	201	...	235	...	252	...	281	...	302	1	288	1	325	...	3,552	5	431	1
on muscles, tendons, fasciæ, and bursa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
on connective tissues	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Operations, on limbs as a whole—	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Amputation at shoulder joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
of forearm	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
of arm	12	...	6	...	5	...	6	...	8	...	2	1	1	...	...	...	...	...	...	...	...	...	...	...
of hand	11	2	6	...	14	1	19	3	17	...	12	2	15	...	11	...	10	2	10	...	131	...	23	1
of thigh	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
of leg	8	3	9	1	16	...	6	2	9	2	8	2	7	3	5	...	9	1	3	...	41	...	29	...
of foot	30	4	29	6	26	5	31	2	37	1	49	1	32	3	44	4	32	1	43	...	125	...	13	...
All other amputations	11	1	8	...	12	7	9	...	8	1	9	...	3	...	10	1	2	...	16	...	501	...	44	1
Operations not classified	14	...	24	...	19	...	14	...	10	...	15	...	6	1	...	...	9	...	3	...	131	...	12	...
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As the old classification into major and minor operations was abolished in 1896, it is useless to include that year in the totals.

## SURGICAL DISORDERS.

I have very little to add to my remarks on the subject in the Jaipur history, to which I will therefore refer the reader of the present work. I regret this the less because a larger amount of operative work has been done in that State for some years past than in any other part of the province, and the observations regarding it are of general application, and were written from experience gained in Marwar as well as in Jaipur.

Moreover, each officer will be able to state his own views in his local history. In the table the number of major operations for 18 years, *viz.*, from 1878 to 1895, has been shown, and also for the year 1896. Unfortunately there was a change of classification in that year which will make it difficult to compare the work done since 1895 with that which was accomplished in previous years. I regret this change and hope a reversion will be made to the old system.

The table shows that a vast amount of surgical relief has been afforded, and no doubt it is success in this direction which impresses the native public and most popularizes our institutions besides increasing the influence and reputation of the Government.

There must always be something wrong when one medical officer reports that there is no scope for surgery in a station or that the people are afraid of the knife, and when one who follows such a person not only states that there is a large field for surgical practice, but proves it by his results; yet this is not an infrequent case.

## INFLUENCE OF SEASON ON THE PREVALENCE OF DISEASE.

This subject is one which has also been discussed at full length in the Jaipur account, and with special advantage, because elaborate meteorological statistics for some years for that portion of the province were available. Unfortunately, the figures, with the exception to some extent of those for Ajmer, are not procurable in such detail or for such long periods for the other districts.

Moreover, the mortality tables of Ajmer have been used for comparative purposes in dealing with Jaipur.

On these grounds I think it better to leave the matter for the present for examination in the separate reports, and, when these are also completed, it may be possible to write a general summary with some advantage. I had hoped that my general history would have been the last of the series, but there has been so much delay in the compilation of some of the local accounts that it is impossible to wait for them any longer.

In the Jaipur work the following tables were used :—

- (1) Return showing the attendance for the principal diseases in all the medical institutions in the city of Jaipur for each month of the year for 11 years.
- (2) The same for nine dispensaries for each month for 18 years, at one for 11 years and at eight for 9 years.
- (3) Mortality tables at Jaipur and Ajmer for each month for 11 years.

- (4) Sickness and mortality of the Jaipur Jail for 11 years.
- (5) Tables showing for each month for 11 years (a sun-spot cycle) all the meteorological data available at the first class observatory of Jaipur.
- (6) Charts of mortality and sickness compared with the prices of food grains and rainfall at Jaipur.
- (7) Weather and mortality charts for Jaipur and Ajmer.

The health of each month was then given, and was followed by notes on the health of each year of the eleven-year period, 1882—1892, in connection with climate, etc., and general conclusions from the above. As the figures which were dealt with were very larger these conclusions are probably of value, but they are of course vitiated to a large extent by the present imperfection of all vital statistics in India, and particularly in the Native States.

I reprint these deductions as the Jaipur report may not be accessible to all :—

“The general results of the enquiries seem to establish the following facts :—

- “(1) That, with a moderate rainfall, which begins at the usual time and continues without any lengthened interruptions, and with a moderate temperature in the hot season, the public health is good.
- “(2) That the curve of mortality and sickness shows two periods of minima, *vis.*, in January and February, and in June and July; and two of maxima, *vis.*, in April or May, and in September and October from malaria (and in August in Jaipur), with a general rise in the curve in the remaining months up to December, which is also due to malaria.
- “(3) That the curves are most liable to be modified by small-pox epidemics from March to June; by cholera from the end of April to the beginning of September; and by malarial fevers from August.
- “(4) That the mortality and sickness of any one year are greatly increased by drought in the preceding year, partly on account of dearth of grain, but also because of the scarcity of water in the wells and tanks which becomes foul and really unfit for drinking purposes.
- “(5) That there is no evidence to show that cholera originates *de novo*; but on the contrary that it is nearly always imported and almost invariably from the East.
- “(6) The Ajmer mortality table shows a great waste of infantile life, *vis.*, 44·18 per cent. on the average. This is due to diseases which are not yet differentiated on account of want of sufficient continuous medical attendance on children and of *post-mortem* examinations. In my opinion, and in that of writers of experience, it is due chiefly to infantile diarrhœa, to small-pox, and to fevers which are probably, for the most part, enteric, or at all events which are due to preventible causes.

"(7) As regards the season of the year, the fourth quarter is the most unhealthy in both Jaipur and Ajmer, and the first is the most healthy; but in Jaipur the difference is much greater, the three first months, as well as December, being decidedly more healthy there than in Ajmer. In the second quarter the totals are about the same, but April is more unhealthy, and June is much more healthy in Jaipur than in Ajmer. In the third quarter, owing to August being usually a sickly month, the Jaipur mortality is much in excess, and is generally due, it seems, to a prolonged break in the monsoon after a heavy fall of rain."

Major Neilson, I.M.S., has interesting notes on the health of each month at Alwar and Bikaner in his accounts of those States. Excluding the meteorological observations, they are based on tables which are very similar to those I used. In the following tables I have summarised the comparative health and mortality of each of the districts for which materials are at present available.

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Tables showing the principal diseases treated in the Medical  
Institutions in Rajputana from  
1877 to 1896.

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Table showing the principal diseases treated in the

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic Affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	...	708	2,446	633	...	...	...	1,052	...	28	2,680
1878	18	95	881	5,529	669	536	49	24	1,182	59	25	2,803
1879	...	19	897	6,877	706	683	302	57	1,623	61	32	3,464
1880	16	1	615	4,238	725	577	766	51	1,546	54	32	4,022
1881	9	10	691	2,804	878	648	611	33	1,648	83	40	4,531
1882	6	80	868	3,571	1,132	736	1,741	35	1,641	74	43	4,487
1883	4	82	1,240	3,950	1,190	1,012	721	153	1,648	101	40	4,646
1884	4	191	907	5,899	901	680	348	82	1,565	91	48	4,991
1885	10	78	761	6,498	726	559	286	36	1,225	110	49	4,687
1886	8	413	826	5,184	778	661	328	54	1,328	112	39	4,740
1887	6	457	1,003	5,511	1,023	651	242	49	1,410	161	75	4,781
1888	29	9	1,069	5,849	920	585	484	82	1,420	501	95	3,801
1889	36	11	860	5,811	875	494	110	150	1,327	596	67	4,482
1890	3	90	766	5,109	715	413	94	185	1,193	500	67	4,641
1891	8	185	1,059	5,899	898	434	101	309	1,420	170	80	5,088
1892	1	722	1,669	16,015	1,057	549	150	477	1,553	208	88	5,859
1893	...	...	881	18,370	1,270	593	220	691	1,890	159	77	5,628
1894	3	...	732	13,860	1,095	453	156	792	1,897	76	22	5,767
1895	2	32	838	10,873	945	398	206	739	1,966	99	26	6,838
1896	10	...	886	10,285	910	376	209	868	2,320	107	44	6,995
TOTAL	173	2,475	18,157	144,578	18,046	11,038	7,124	4,867	30,854	3,322	1,017	94,931
Average for 20 years	8.65	123.75	907.85	7,228.90	902.30	551.90	356.20	243.35	1,542.70	166.10	50.85	4,746.55

*Medical Institutions of AJMER-MERWARA from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhoea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
1,004	55	1,084	...	...	183	29	4,523	284	1,080	15,789	10,290	26,079
583	86	1,297	659	85	278	3,594	5,560	257	1,313	25,582	6,836	32,418
1,123	123	1,741	647	55	447	3,752	5,833	443	1,192	30,077	6,373	36,450
1,150	87	1,927	585	43	565	2,553	6,879	497	1,199	28,128	7,519	35,647
1,578	122	1,996	890	42	365	2,662	9,189	315	1,507	30,652	8,707	39,359
1,800	122	2,252	971	41	407	2,501	7,836	304	1,146	31,794	6,658	38,452
1,731	153	2,290	1,346	90	717	2,724	6,546	293	1,726	32,403	6,826	39,229
1,710	115	2,392	1,146	148	321	2,724	6,434	253	1,757	32,707	7,302	40,009
1,550	223	2,016	815	154	360	2,331	5,849	344	1,547	30,214	7,529	37,743
1,616	303	1,985	1,039	187	336	2,799	6,736	322	1,448	31,242	7,183	38,425
1,902	208	1,908	1,391	195	333	2,657	6,939	281	1,589	32,862	7,326	40,188
1,830	1,316	2,094	1,081	213	388	2,706	4,057	312	1,472	30,313	7,448	37,761
1,894	335	2,418	945	177	320	3,175	3,706	289	1,392	29,470	8,930	38,400
1,998	159	2,285	920	179	258	3,246	3,442	246	1,325	27,834	8,646	36,480
1,951	166	2,773	1,260	159	331	4,048	3,446	289	1,363	31,437	10,293	41,730
1,944	104	2,681	1,595	242	405	3,469	4,327	325	1,217	44,657	11,229	55,886
2,000	173	3,703	1,087	227	758	4,402	5,544	285	1,488	49,446	10,630	60,076
2,316	197	3,791	1,069	208	717	4,971	6,059	204	1,509	45,894	9,996	55,890
2,260	197	3,425	942	180	564	6,875	5,619	160	1,623	44,807	10,710	55,517
2,806	57	3,289	1,150	181	498	7,050	6,050	278	1,626	45,995	11,643	57,638
34,746	4,391	47,347	19,538	2,806	8,551	68,268	114,574	5,981	28,519	671,303	172,074	843,377
1,737'30	219'55	2,367'36	976'90	140'30	427'55	3,413'40	5,728'70	299'05	1,425'95	33,565'15	8,603'70	42,168'85

*Table showing the principal diseases treated in the*

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	105	573	1,431	171	...	...	...	966	...	29	608
1878	7	102	710	4,466	382	309	65	19	1,072	30	22	611
1879	1	4	643	7,029	420	259	59	1	1,198	27	30	618
1880	18	...	435	3,244	301	191	42	...	1,135	22	25	926
1881	...	...	361	3,975	312	202	54	2	1,220	26	26	904
1882	6	...	384	4,708	290	173	41	1	1,214	29	34	1,368
1883	1	59	336	3,093	288	238	35	2	1,331	32	23	1,534
1884	18	604	490	6,393	234	200	30	6	1,266	45	27	1,717
1885	1	84	495	5,600	198	167	15	5	1,261	35	13	2,186
1886	3	...	367	4,277	229	205	68	1	1,193	54	26	2,880
1887	17	188	602	6,583	236	208	36	2	1,060	41	27	2,504
1888	...	...	497	6,618	181	131	39	37	1,049	43	27	2,986
1889	5	307	552	6,151	227	148	31	36	1,007	29	24	3,114
1890	12	...	535	6,170	170	135	34	47	962	24	13	3,221
1891	5	30	682	5,101	151	116	42	76	881	30	20	3,197
1892	1	741	438	6,694	159	113	39	75	829	31	30	3,509
1893	2	...	321	4,553	171	135	34	55	918	39	22	3,650
1894	16	...	704	6,685	252	216	82	276	1,160	20	36	4,110
1895	13	...	439	4,471	405	243	123	269	1,359	73	37	4,012
1896	39	...	544	4,332	499	256	114	282	1,213	73	39	4,079
TOTAL	165	2,224	10,108	101,574	5,276	3,645	983	1,192	22,294	703	530	47,734
Average for 20 years	8.25	111.20	505.40	5,078.70	263.80	182.25	49.15	59.60	1,114.70	35.15	26.50	2,386.70

*Medical Institutions of the DHOLPUR STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhoea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
227	59	882	...	...	90	11	2,441	8	241	7,842	3,030	10,872
237	24	885	500	34	94	649	2,833	20	166	13,237	2,077	15,314
279	18	1,281	308	49	214	777	2,724	13	184	16,136	1,883	18,019
376	32	1,369	266	46	284	989	3,559	12	241	13,513	1,950	15,463
331	16	1,884	267	48	200	1,294	4,458	5	273	15,858	2,348	18,206
498	20	1,840	273	64	292	1,836	4,938	8	269	18,286	2,453	20,739
427	20	2,034	317	26	219	1,027	5,458	5	250	17,655	2,231	19,886
645	24	2,066	942	68	219	2,159	4,843	7	305	22,308	2,218	24,526
546	23	2,243	477	58	325	3,722	4,210	2	277	21,943	1,855	23,798
633	40	2,153	397	60	195	4,198	4,863	13	366	22,223	1,991	24,214
691	30	2,234	547	59	182	3,120	5,067	19	349	23,802	2,246	26,048
589	1	2,076	348	44	241	2,262	3,196	10	308	20,683	3,226	23,909
647	...	2,560	595	33	226	1,467	3,534	2	254	20,969	3,093	24,062
836	...	2,838	433	33	144	1,128	3,254	8	260	20,257	3,169	23,426
695	5	2,356	437	47	163	1,222	3,028	3	333	18,620	3,951	22,571
702	1	2,309	634	60	200	1,098	3,382	3	287	21,335	4,279	25,614
658	...	2,273	447	51	156	1,042	2,995	...	271	17,793	3,575	21,668
1,040	7	2,916	679	96	164	1,864	2,987	6	333	23,649	4,721	28,370
1,237	4	2,394	619	170	152	1,918	3,390	10	284	21,622	5,043	26,665
1,114	1	2,065	735	125	145	1,490	2,892	6	297	20,340	4,611	24,951
12,408	325	40,658	9,221	1,191	3,905	34,173	74,052	162	5,548	378,071	60,250	438,321
620'40	16'25	2,032'90	461'05	59'55	195'25	1,708'65	3,702'60	8'10	277'40	18,903'55	3,012'50	21,916'05

Table showing the principal diseases treated in the

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	4	4,508	8,131	796	...	...	...	4,527	...	105	3,489
1878	21	332	1,920	14,996	1,470	1,118	148	43	5,317	79	93	3,651
1879	1	157	1,978	21,508	1,651	873	93	55	5,218	72	62	3,065
1880	4	...	1,768	10,890	1,444	698	165	44	6,169	74	58	4,560
1881	...	100	1,499	13,555	1,264	653	349	32	5,235	77	64	4,155
1882	1	1	1,314	12,536	1,162	682	209	54	4,998	102	82	5,115
1883	2	20	1,323	9,900	866	675	90	31	4,802	108	108	5,504
1884	4	172	1,567	15,320	989	613	63	48	4,479	119	99	5,622
1885	...	76	1,315	15,670	825	548	94	51	3,921	89	118	5,371
1886	2	...	1,496	14,559	773	650	151	101	3,566	97	80	6,069
1887	3	299	2,478	18,497	704	634	95	70	3,287	92	73	5,777
1888	2	...	2,220	18,140	883	817	154	132	3,850	114	101	7,493
1889	6	95	2,075	13,760	754	653	147	165	3,741	36	87	7,752
1890	15	57	1,998	17,731	941	618	136	291	3,595	24	61	7,592
1891	1	...	1,816	14,820	892	591	119	195	3,587	17	38	7,477
1892	...	213	1,752	15,434	877	533	129	308	3,239	40	34	8,157
1893	2	...	1,486	11,946	888	689	230	211	3,614	25	35	8,949
1894	5	...	2,094	12,079	991	686	211	366	3,823	45	43	9,761
1895	...	...	117	446	1,257	693	235	687	4,036	94	123	12,309
1896	7	56	2,245	10,077	1,069	592	190	772	4,087	42	87	11,698
TOTAL	76	1,582	36,969	269,995	20,496	13,016	3,008	3,656	85,091	1,346	1,551	133,566
Average for years	3'80	79'10	1,848'45	13,499'75	1,024'80	650'80	150'40	182'80	4,254'55	67'30	77'55	6,678'30

*Medical Institutions of the BHARATPUR STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhoea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
1,208	40	3,268	...	...	257	7	10,749	31	579	37,699	20,215	57,914
1,313	241	3,260	4,333	184	234	7,031	12,123	101	532	58,560	11,020	69,580
1,282	309	3,467	4,290	175	454	6,629	11,684	46	423	63,492	9,799	73,291
1,608	364	4,614	3,023	213	1,076	7,081	14,775	21	461	59,110	11,197	70,307
1,706	290	4,724	3,009	158	673	5,891	15,243	51	556	59,284	10,825	70,109
2,004	332	4,527	2,428	247	995	5,881	15,173	54	789	58,686	12,187	70,873
2,004	312	4,433	2,249	200	735	6,352	14,621	49	955	55,339	12,218	67,557
2,080	331	4,065	2,442	259	663	6,267	12,533	78	959	58,772	11,929	70,701
1,946	323	4,689	1,945	273	1,096	7,338	12,597	78	897	59,260	11,312	70,572
2,276	268	5,064	1,793	220	1,274	9,804	13,420	51	1,036	62,750	12,425	75,175
2,139	301	4,733	2,493	209	1,037	9,907	12,914	75	975	66,792	13,293	80,085
2,371	60	4,346	2,122	294	1,144	11,242	11,499	90	884	67,958	17,845	85,803
2,376	67	5,379	2,614	247	909	8,439	10,749	76	883	61,010	17,894	78,904
3,070	100	6,298	2,543	315	870	6,935	10,021	88	1,058	64,357	18,016	83,273
2,736	31	5,815	2,295	258	747	6,649	10,124	93	1,003	59,304	18,339	77,643
2,941	20	6,282	2,364	293	922	6,101	10,267	78	1,027	61,011	18,149	79,160
2,599	34	5,751	1,706	339	879	6,796	10,063	76	1,016	57,334	17,281	74,615
3,533	39	7,764	1,661	277	758	7,566	11,562	66	1,162	64,402	21,456	85,948
4,502	141	10,858	1,540	232	991	10,639	12,386	113	1,711	63,110	42,418	105,528
4,645	101	9,954	1,667	186	619	9,100	10,534	121	1,403	69,252	29,777	99,029
48,339	3,704	110,291	46,517	4,579	16,333	145,655	243,037	1,436	18,329	1,207,572	338,495	1,546,067
2,416'95	185'20	5,464'55	2,325'85	228'95	816'63	7,282'75	12,151'85	71'80	916'45	60,375'60	16,924'75	77,303'35

Table showing the principal diseases treated in the

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	...	140	605	34	...	...	...	153	...	1	2,033
1878	21	93	167	1,271	75	50	30	13	211	3	...	2,633
1879	...	41	129	1,656	104	47	29	2	156	3	1	2,636
1880	...	...	142	969	120	37	2	4	197	2	1	1,531
1881	...	...	87	682	88	37	5	2	186	6	4	1,780
1882	...	...	104	583	93	27	10	4	157	6	5	2,068
1883	...	16	152	606	78	30	2	3	198	6	10	2,275
1884	...	182	328	2,362	141	132	14	59	588	25	15	3,018
1885	1	63	359	3,138	110	115	15	59	554	38	12	2,754
1886	1	...	455	3,775	120	123	28	104	630	24	14	2,869
1887	1	145	375	3,979	79	93	63	87	574	21	19	2,767
1888	...	...	302	4,048	101	98	32	59	815	23	13	3,807
1889	...	858	346	3,304	102	101	21	78	779	25	21	3,792
1890	...	4	488	4,033	114	96	33	66	848	28	11	3,998
1891	...	...	446	4,293	192	99	25	74	891	18	17	4,357
1892	...	321	553	5,851	223	128	31	112	1,041	21	10	4,583
1893	...	...	366	4,064	187	104	26	106	1,226	9	6	5,541
1894	3	...	572	4,406	139	87	23	73	973	1	8	5,092
1895	...	1	519	3,848	146	121	46	93	950	20	6	5,098
1896	...	...	656	4,514	156	97	26	592	1,179	14	11	4,979
TOTAL	27	1,724	6,686	58,588	2,402	1,622	461	1,590	12,306	293	185	67,611
Average for 20 years	1'35	86'20	334'3	2,929'4	120'1	81'1	23'05	79'5	615'3	14'65	9'25	3,380'55

*Medical Institutions of the KARALI STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhoea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
309	...	221	...	...	10	3	917	81	124	4,632	972	5,604
310	1	218	84	5	10	332	1,225	68	57	6,777	484	7,261
227	...	222	78	8	24	314	1,087	83	62	6,909	485	7,394
307	9	354	104	4	142	438	990	42	81	5,476	412	5,888
405	4	374	88	10	65	352	870	23	61	5,129	539	5,668
391	8	228	86	5	59	416	827	34	83	5,194	456	5,650
536	12	218	164	8	38	588	1,011	23	107	6,081	554	6,635
814	35	1,007	305	44	233	1,539	1,919	164	396	13,320	1,509	14,829
779	19	1,098	291	45	225	1,809	2,188	97	406	14,175	1,805	15,980
826	51	1,288	416	52	245	2,457	2,471	116	433	16,498	1,904	18,402
910	53	1,061	437	52	206	2,306	3,023	88	305	16,644	1,763	18,407
1,053	3	1,101	296	62	234	2,640	1,668	159	418	16,932	3,588	20,520
1,062	21	1,231	311	69	178	2,212	1,904	142	471	17,028	3,751	20,779
1,297	6	1,379	408	90	155	2,415	1,983	104	491	18,047	4,230	22,277
1,301	7	1,293	493	84	234	2,639	1,974	127	505	19,069	4,609	23,678
1,598	16	1,742	769	123	275	2,733	2,174	119	481	22,904	5,583	28,487
1,377	10	1,711	634	129	278	3,107	2,482	94	481	22,538	5,301	27,839
1,806	10	1,896	642	80	144	2,959	2,497	63	453	21,927	5,063	26,990
1,848	17	1,977	584	86	203	3,293	2,648	106	515	22,125	5,977	28,102
1,729	113	1,818	1,066	1,224	422	3,128	5,086	94	611	27,515	5,573	33,088
18,785	395	20,437	7,256	2,180	3,380	35,680	38,944	1,827	6,541	288,920	54,558	343,478
939'25	19'75	1,021'85	362'8	109'	169'	1,784'	1,947'2	91'35	327'05	1,444'6	2,727'00	17,173'00



Table showing the principal diseases treated in the

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhœa and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	...	521	913	299	...	...	...	380	...	61	1,951
1878	2	118	785	3,693	595	380	13	47	386	25	20	2,120
1879	2	37	605	8,055	581	226	36	32	448	15	32	1,958
1880	...	2	315	3,171	468	112	25	33	389	12	47	2,587
1881	2	4	410	3,527	476	164	42	31	342	21	50	2,752
1882	2	12	210	2,318	373	140	27	29	299	22	27	3,529
1883	1	89	239	2,381	289	131	16	34	324	26	40	3,305
1884	...	...	420	4,581	321	141	12	36	339	38	39	3,473
1885	...	108	291	4,732	194	129	15	28	325	36	36	2,962
1886	...	...	595	4,177	305	148	37	37	460	77	61	3,407
1887	1	991	743	8,195	362	191	49	211	553	49	61	2,904
1888	...	...	524	10,877	458	232	50	399	1,063	75	66	4,158
1889	2	232	557	7,289	732	262	27	429	1,463	120	97	4,610
1890	20	67	767	11,121	779	418	127	559	2,038	202	120	5,322
1891	...	...	892	12,548	874	363	186	476	2,477	380	117	5,849
1892	1	420	1,070	14,748	890	330	195	602	2,386	184	85	6,130
1893	...	1	900	14,693	1,443	491	192	899	3,296	349	148	7,525
1894	3	...	982	10,953	1,379	497	225	1,131	2,646	273	139	6,244
1895	8	...	971	9,970	1,173	420	298	1,066	3,336	438	122	6,733
1896	21	...	1,076	9,823	1,283	515	330	1,099	3,386	330	139	6,758
TOTAL	74	2,081	12,873	147,770	13,274	5,290	1,902	7,178	26,336	2,672	1,507	84,277
Average for 20 years	3.70	104.05	643.65	7,388.50	663.70	264.50	95.10	358.90	1,316.80	133.60	75.35	4,213.85

*Medical Institutions of the ALWAR STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhoea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
658	67	752	...	...	37	10	1,767	33	255	7,704	4,635	12,339
599	6	1,040	715	330	38	1,637	1,821	82	262	14,714	1,937	16,651
733	12	874	333	311	187	1,142	1,712	115	224	17,670	2,351	20,021
769	5	909	261	177	372	792	2,413	57	237	13,173	2,972	16,145
145	11	1,346	319	213	170	712	2,972	59	222	13,990	3,904	17,894
1,031	8	1,047	324	98	185	645	2,408	59	177	12,970	3,327	16,297
919	35	819	365	439	130	769	2,049	51	218	12,669	1,834	14,503
1,071	17	1,117	389	562	140	717	1,783	48	217	15,461	1,921	17,382
1,048	6	1,352	371	487	187	985	1,517	64	193	15,066	1,902	16,968
1,164	34	1,444	577	479	183	1,520	1,932	50	242	16,929	2,510	19,439
1,175	75	1,396	924	378	274	1,991	2,473	59	289	23,344	3,159	26,503
1,445	45	1,723	806	228	662	4,925	2,319	30	648	30,733	6,471	37,204
1,928	128	2,738	1,384	332	424	7,234	3,021	89	1,021	34,119	8,477	42,596
2,715	190	4,150	1,548	414	515	7,957	3,920	105	1,138	44,201	11,279	55,480
2,539	164	4,259	1,317	436	496	8,633	4,685	104	1,289	48,284	11,294	59,578
2,920	239	4,003	1,569	487	448	7,788	5,961	37	1,465	51,958	13,948	64,906
2,829	86	6,107	1,248	304	513	10,383	7,868	72	1,568	60,920	13,121	74,041
2,830	176	6,516	1,573	366	561	9,335	5,821	59	2,010	53,719	14,621	68,340
2,845	352	5,713	1,364	482	631	9,218	5,938	55	2,120	53,253	15,824	69,077
2,965	285	5,977	1,837	426	661	7,494	5,896	39	2,250	52,590	15,872	68,462
32,328	1,941	53,282	17,224	6,919	6,814	83,887	68,476	1,267	16,065	593,467	140,359	733,826
1,616'40	97'5	2,664'10	861'20	347'45	340'70	4,194'35	3,423'80	63'35	803'25	29,673'35	7,017'95	36,691'30

Table showing the principal diseases treated in the

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhœa and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877 . .	...	6	2,550	5,406	1,849	...	...	...	3,086	...	85	2,063
1878 . .	53	520	1,542	9,978	2,267	1,591	77	547	2,723	232	78	1,800
1879 . .	16	271	1,605	13,844	2,494	1,545	336	491	2,927	221	86	1,483
1880 . .	101	4	1,094	6,879	2,350	1,450	211	453	2,806	285	58	1,851
1881 . .	72	31	1,116	7,783	2,260	1,327	203	521	2,979	300	77	2,311
1882 . .	18	119	1,189	8,254	2,681	1,714	255	779	3,643	459	111	3,892
1883 . .	16	100	1,060	7,239	2,506	1,727	208	800	4,097	271	106	4,936
1884 . .	29	25	1,500	12,305	2,093	1,617	321	853	4,290	292	131	5,108
1885 . .	37	70	1,776	11,846	2,248	1,773	312	1,089	4,778	262	135	5,642
1886 . .	19	19	1,829	11,298	2,166	1,698	308	1,060	5,416	326	138	6,484
1887 . .	4	69	2,838	22,073	2,376	1,948	394	1,394	6,280	367	164	7,453
1888 . .	4	...	2,731	23,858	2,858	1,967	538	1,725	7,154	203	186	9,667
1889 . .	36	268	2,617	22,165	3,065	2,295	578	1,610	7,557	191	152	10,670
1890 . .	50	459	3,164	24,182	3,461	2,552	671	1,998	7,922	200	147	10,521
1891 . .	14	...	3,590	22,348	4,102	2,674	661	2,231	8,396	206	144	12,215
1892 . .	7	1,068	4,462	35,058	3,718	2,397	595	2,103	7,915	216	154	14,435
1893 . .	...	...	3,538	30,816	3,779	2,383	616	2,073	7,873	166	184	14,098
1894 . .	15	...	4,120	24,700	3,490	2,255	884	2,194	7,775	152	127	14,005
1895 . .	5	...	3,616	20,695	3,404	2,152	751	2,139	7,777	168	132	15,705
1896 . .	91	...	3,583	18,537	3,451	2,205	634	2,289	7,845	183	152	17,157
TOTAL .	587	3,029	40,520	339,264	56,618	37,270	8,553	26,349	113,239	4,700	2,547	161,496
Average for 20 years . .	29'35	151'45	2,476'00	16,963'20	2,830'90	1,863'50	427'65	1,317'45	5,661'95	235'00	127'35	8,074'80

*Medical Institutions of the JAIPUR STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhoea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
1,395	194	2,301	...	...	214	70	8,429	140	895	28,683	23,646	52,329
1,451	280	2,145	2,401	233	367	8,414	8,725	151	842	46,417	12,715	59,132
1,458	305	2,285	1,878	344	906	6,581	8,457	280	757	48,570	13,136	61,706
1,598	289	3,037	1,127	248	1,120	5,816	8,547	176	885	40,685	12,869	53,554
2,184	331	3,272	1,356	228	783	5,816	9,380	222	1,086	43,037	13,834	57,471
2,715	408	3,540	1,753	326	939	8,425	11,757	358	1,295	54,630	17,616	72,256
2,940	397	4,175	1,903	328	720	8,768	12,184	387	1,559	56,427	19,634	76,061
3,360	282	5,871	2,385	389	913	8,497	12,755	2,320	1,844	67,180	18,236	85,416
3,554	384	5,734	2,794	439	1,193	9,537	13,558	420	2,296	69,877	20,655	90,532
4,253	422	6,062	2,645	404	1,089	12,411	15,664	479	2,606	76,796	23,478	100,274
4,637	637	7,379	4,723	499	1,336	16,738	18,171	466	3,048	102,985	27,499	130,484
5,292	174	8,302	4,215	712	1,971	23,830	13,025	454	3,780	112,646	42,194	154,840
5,976	196	10,616	4,326	770	1,627	27,536	13,510	471	3,976	120,208	43,732	163,940
6,970	160	12,278	4,888	841	1,522	26,699	13,256	505	3,558	126,004	44,581	170,585
6,504	206	11,664	4,999	687	1,730	26,811	14,568	617	4,038	128,405	47,604	176,009
6,750	222	12,601	6,898	801	2,224	25,624	15,083	353	4,320	147,004	49,172	196,176
6,847	185	14,500	4,117	895	3,641	26,873	15,134	392	4,144	142,254	45,705	187,959
7,868	196	15,601	4,011	844	2,347	29,661	15,497	281	3,830	139,853	45,189	185,042
7,913	244	13,170	3,701	871	1,865	30,869	17,563	404	3,930	137,074	47,771	184,845
9,839	196	11,881	3,521	711	1,514	25,484	18,788	381	4,412	132,855	50,359	183,214
93,504	5,708	156,414	63,641	10,561	28,020	334,460	264,351	9,258	53,101	1,822,190	619,635	2,441,825
4,675'20	285'4	7,820'70	3,182'05	528'05	1,401'00	16,723'00	13,217'55	462'90	2,635'05	91,102'50	30,981'75	122,091'25

Table showing the principal diseases treated in the Medical

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	...	169	250	84	...	...	...	156	...	3	42
1878	4	...	131	474	92	71	3	5	149	14	3	71
1879	2	...	95	1,566	127	92	6	16	146	8	4	62
1880	...	...	66	428	118	97	4	20	194	12	5	72
1881	2	...	68	660	126	81	60	16	176	16	8	71
1882	5	...	55	771	138	87	140	29	205	10	16	106
1883	6	...	61	411	156	142	12	22	317	42	10	98
1884	1	1	79	664	181	158	15	20	306	38	25	140
1885	...	...	140	614	388	237	156	166	591	18	22	178
1886	4	10	545	2,330	910	477	91	362	1,624	62	45	885
1887	7	1	905	4,515	975	527	116	527	1,881	102	57	1,063
1888	41	...	826	4,588	1,212	597	279	738	1,965	76	93	1,301
1889	13	22	1,049	5,350	1,403	648	318	802	2,354	81	53	1,471
1890	9	22	1,073	9,454	1,538	630	735	632	2,468	87	76	1,557
1891	7	290	1,156	7,441	1,613	780	1,147	652	2,666	140	82	1,936
1892	7	1,446	1,970	26,577	1,402	899	943	855	2,774	101	89	1,771
1893	1	2	1,796	13,432	1,786	1,145	927	1,023	3,020	184	141	2,026
1894	2	...	1,450	12,391	1,909	1,185	990	1,122	3,531	202	122	1,926
1895	2	...	1,511	8,752	1,652	1,082	1,144	1,009	3,516	233	145	2,203
1896	24	46	1,678	10,051	2,239	1,189	1,133	1,317	3,268	259	155	2,326
TOTAL	137	1,840	14,831	110,719	18,049	10,124	8,219	9,333	31,317	1,685	1,154	19,305
Average for 20 years	6'85	92'00	741'55	5'535'95	902'45	506'20	410'95	466'68	1,565'85	84'25	57'70	95'25

*Institutions of the BIKANER STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhoea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
62	32	177	...	...	13	8	323	60	113	1,501	1,050	2,551
54	19	156	63	4	10	295	388	47	113	2,166	641	2,807
62	24	159	80	9	21	282	414	80	130	3,385	722	4,107
71	13	146	53	6	14	210	453	70	169	2,227	776	3,003
54	28	148	71	14	6	254	517	58	148	2,582	744	3,326
44	20	117	74	12	18	234	520	59	178	2,838	680	3,518
57	35	262	65	8	22	333	761	68	266	3,154	1,175	4,329
79	38	265	107	18	22	410	799	87	320	3,773	1,645	5,418
189	28	299	97	12	63	516	1,135	64	467	5,380	2,022	7,402
479	81	1,241	448	81	96	1,723	3,402	105	682	15,773	4,527	20,300
672	88	1,460	699	78	119	2,490	5,217	247	1,059	22,805	5,942	28,747
856	173	1,798	790	169	254	3,464	4,034	277	1,357	24,888	11,306	36,194
890	173	2,302	1,018	170	353	4,143	4,449	272	1,314	28,648	11,863	40,511
1,093	130	3,243	974	154	327	4,457	4,891	205	1,531	35,286	12,639	47,925
1,315	128	3,414	1,402	216	427	5,319	5,290	262	1,892	37,575	13,987	51,562
1,650	96	4,532	2,061	185	689	5,174	5,296	56	1,782	60,355	14,436	74,791
1,783	98	4,504	1,884	336	956	6,201	6,287	118	1,931	49,581	15,775	65,356
2,043	110	5,192	1,631	339	920	7,715	7,903	111	1,999	51,991	17,153	69,144
2,153	143	5,469	1,700	388	700	8,837	8,147	103	2,064	50,963	18,162	69,125
2,238	176	5,743	1,915	507	685	8,700	8,051	181	1,940	53,816	19,530	73,346
15,844	1,628	40,627	15,132	2,706	5,715	60,765	67,377	2,635	19,455	458,597	154,775	613,372
792*20	81*40	2,031*35	756*60	135*30	285*75	3,038*25	3,368*83	131*75	972*75	22,929*85	7,738*75	30,668*60

Table showing the principal diseases treated in the Medical

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	...	712	1,362	594	...	...	...	928	...	29	845
1878	4	931	645	2,575	557	364	21	194	875	56	35	505
1879	16	...	433	2,243	683	462	31	186	995	71	54	672
1880	...	...	343	2,044	663	469	44	157	1,239	51	43	790
1881	11	...	428	2,535	661	477	336	188	1,067	67	39	791
1882	...	...	435	2,146	644	542	365	210	1,130	73	40	990
1883	5	...	451	2,165	640	711	305	254	1,283	76	45	981
1884	...	218	584	3,194	595	511	352	293	1,290	61	56	1,115
1885	2	96	612	2,453	534	414	237	284	1,269	53	37	1,106
1886	4	33	631	2,577	608	486	200	276	1,386	70	28	1,251
1887	1	651	674	2,247	474	503	291	283	1,280	57	40	1,385
1888	3	...	1,087	3,202	785	553	529	456	1,916	96	97	2,391
1889	1	...	1,148	5,459	841	744	329	592	2,067	52	75	2,627
1890	4	...	1,054	6,427	795	633	265	646	2,174	50	78	2,943
1891	1	396	1,372	6,031	985	722	530	685	2,516	45	60	3,364
1892	...	3,572	1,849	18,847	899	669	474	907	2,408	45	71	3,587
1893	...	...	1,417	19,892	945	665	611	936	2,775	51	61	3,866
1894	...	...	1,152	16,861	938	604	411	845	2,653	60	71	4,144
1895	...	62	1,097	11,851	831	588	413	870	2,699	53	63	4,703
1895	30	478	1,398	13,677	952	732	622	1,029	3,592	67	51	6,878
TOTAL	82	6,437	17,522	1,27,788	14,624	10,849	6,316	9,311	35,542	1,154	1,073	45,024
Average for 20 years	4'10	321'85	876'10	6,389'40	731'20	512'45	315'80	465'55	1,777'10	57'70	53'65	2,251'20

*Institutions of the JODHPUR STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
1,239	126	741	...	...	238	22	3,193	459	697	11,185	9,845	21,030
1,003	64	975	806	74	223	3,372	3,385	330	550	17,724	4,487	22,211
979	24	1,007	672	72	304	2,638	3,248	374	650	15,814	3,817	19,631
912	11	966	558	93	273	2,797	3,303	402	753	15,911	4,366	20,277
1,255	29	1,038	671	67	200	2,178	3,552	364	679	16,633	4,190	20,823
1,353	72	1,005	642	75	212	2,410	3,598	457	855	17,254	4,544	21,798
1,486	48	1,109	599	83	216	2,550	3,809	324	877	18,017	4,639	22,656
1,671	62	1,178	753	125	164	2,478	3,403	354	925	19,332	4,905	24,238
1,600	56	1,199	655	103	207	2,769	3,222	442	999	18,349	4,009	23,258
1,809	59	1,191	679	67	205	2,682	3,331	397	1,052	19,022	4,963	23,985
1,560	35	1,224	852	64	142	2,436	3,168	468	990	18,825	4,932	23,757
2,065	99	1,809	1,005	179	411	4,688	2,393	578	1,430	25,772	8,928	34,700
2,789	85	2,034	1,152	156	349	5,153	2,360	553	1,393	29,959	9,382	39,341
3,277	114	2,651	1,018	201	305	5,372	2,623	474	1,474	32,581	10,692	43,273
3,277	127	3,091	1,443	289	346	6,666	2,831	708	1,818	37,303	12,592	49,895
3,419	65	2,697	1,901	198	420	6,356	3,298	837	1,789	54,308	12,814	67,122
3,554	59	4,178	1,307	296	1,160	9,095	3,801	905	1,922	57,516	14,064	71,580
4,310	70	4,731	1,102	334	1,195	12,093	3,897	577	2,029	58,077	14,628	72,705
4,019	51	3,817	1,025	252	734	14,135	5,012	801	2,086	55,162	15,590	70,752
5,054	53	3,789	1,704	292	755	14,393	7,578	729	2,572	66,425	16,141	84,566
46,631	1,309	40,430	18,634	3,023	8,059	104,283	71,005	10,533	25,540	605,169	172,429	777,598
2,331'55	65'45	2,021'50	931'70	151'15	402'95	5,214'15	3,550'25	526'65	1,277'00	39,258'45	8,621'45	38,879'90



*Table showing the principal diseases treated in the Medical*

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	...	157	116	38	...	...	...	58	...	3	260
1878	1	...	105	517	28	43	2	...	46	3	4	199
1879	...	...	100	378	55	44	28	...	50	2	3	199
1880	7	...	92	211	54	28	19	...	53	5	3	212
1881	2	...	89	318	35	34	36	...	50	4	4	239
1882	3	...	59	310	45	27	33	4	52	14	4	254
1883	...	...	74	277	46	40	10	1	69	5	7	247
1884	...	...	60	905	49	51	6	3	122	7	3	185
1885	...	...	186	494	83	72	17	4	161	21	6	151
1886	...	...	147	432	102	78	21	6	157	24	4	184
1887	5	52	222	830	125	109	12	9	194	23	5	204
1888	10	21	123	827	181	112	12	35	251	20	18	283
1889	...	...	157	765	187	111	20	28	228	14	11	197
1890	...	...	145	1,169	136	115	24	26	175	21	9	161
1891	...	...	138	1,104	165	92	27	30	173	18	12	159
1892	...	...	170	1,204	140	108	20	12	206	22	11	190
1893	...	8	153	1,463	147	95	23	11	215	15	2	192
1894	...	...	211	2,283	182	152	87	29	248	19	8	255
1895	...	...	242	1,917	192	149	78	39	249	26	5	310
1896	...	...	300	1,638	161	132	107	27	244	26	8	436
TOTAL	28	81	2,930	17,167	2,151	1,593	582	264	3,001	289	130	4,517
Average for 20 years	1'40	4'05	146'50	853'35	107'53	79'05	29'10	13'20	150'05	14'45	6'50	225'85

*Institutions of the SIROHI STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhoea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
32	17	134	...	...	5	...	215	5	18	1,058	486	1,544
40	3	145	78	10	15	98	242	5	11	1,595	363	1,958
55	2	124	96	5	23	133	297	5	19	1,618	339	1,957
54	14	167	86	2	23	56	313	3	2	1,404	455	1,859
46	17	135	63	7	14	82	295	3	14	1,487	469	1,956
54	37	124	41	19	29	88	334	13	20	1,564	509	2,073
70	23	144	104	16	32	171	407	3	9	1,755	329	2,084
104	27	179	114	30	30	331	596	1	13	2,825	206	3,031
109	55	240	222	43	45	308	669	...	17	2,903	100	3,003
87	68	268	211	31	51	332	770	3	33	3,009	138	3,147
120	59	213	309	42	62	316	769	18	80	3,787	131	3,918
98	26	270	253	54	88	702	688	23	120	4,215	536	4,751
98	14	275	239	48	73	495	634	27	172	3,793	981	4,774
89	15	278	203	60	69	493	650	24	224	4,086	1,044	5,130
117	22	304	206	48	59	473	683	18	230	4,078	1,196	5,274
126	27	372	273	47	73	546	611	28	250	4,436	1,172	5,608
117	32	366	262	51	103	563	620	18	230	4,687	1,168	5,855
174	37	661	275	76	95	605	1,011	25	245	6,678	1,418	8,096
137	42	523	294	48	84	659	1,217	30	240	6,491	1,464	7,955
167	42	473	378	53	77	782	1,267	35	239	6,592	1,770	8,362
1,894	579	5,405	3,707	690	1,039	7,233	12,288	287	2,183	6,806	14,274	82,335
94'70	28'05	270'25	185'35	34'50	52'95	361'65	614'40	14'35	109'30	3,403'05	713'70	4,116'5

Table showing the principal diseases treated in the Medical

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	...	406	574	158	...	...	...	620	...	26	574
1878	26	30	444	1,559	231	184	19	172	559	122	35	430
1879	...	4	371	1,489	289	235	90	238	640	144	41	511
1880	...	...	199	1,348	281	218	68	126	528	77	33	605
1881	2	...	215	1,233	388	222	99	61	452	40	31	696
1882	1	161	135	1,228	342	207	85	60	521	43	41	867
1883	...	...	138	1,004	338	229	62	37	473	48	33	791
1884	8	28	214	1,356	355	201	55	58	449	32	21	717
1885	...	47	245	1,461	266	201	65	61	482	41	18	714
1886	2	...	129	1,229	281	206	31	68	598	24	12	826
1887	...	...	301	2,855	286	252	47	95	655	49	15	818
1888	...	...	184	1,574	271	201	52	71	635	40	24	825
1889	4	...	252	2,258	331	217	46	89	737	29	20	964
1890	...	29	177	1,910	271	226	43	59	830	16	16	929
1891	...	...	213	1,679	189	248	55	108	764	7	6	728
1892	1	82	349	3,522	221	189	63	93	599	19	10	630
1893	3	...	137	1,589	240	261	68	66	653	15	15	818
1894	2	...	137	1,518	322	247	104	149	791	90	14	1,267
1895	1	...	145	1,367	302	184	105	115	657	67	8	1,031
1896	1	...	199	1,181	235	198	126	95	801	68	16	1,239
TOTAL	51	381	4,590	31,934	5,597	4,126	1,283	1,821	12,444	971	435	15,980
Average for 20 years	2'55	19'05	229'50	1,596'70	279'85	206'30	64'15	91'05	622'20	48'55	21'75	799'00

*Institutions of the TONK STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhoea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
418	...	694	...	...	87	11	857	29	619	4,983	4,858	9,841
348	...	577	295	29	105	2,234	1,004	14	658	9,075	2,129	11,204
356	3	740	325	44	189	1,080	756	23	706	8,274	2,821	11,095
441	24	782	214	32	295	1,472	1,804	55	552	9,154	2,200	11,444
582	47	830	183	55	191	1,277	2,658	66	708	10,036	2,995	13,031
678	35	736	313	44	158	1,460	2,813	68	800	10,796	3,094	13,890
726	44	685	200	42	107	1,462	2,961	72	914	10,366	2,849	13,215
703	31	755	245	51	108	1,329	3,135	54	745	10,650	2,933	13,583
711	28	759	262	40	158	1,329	3,323	55	583	10,849	2,684	13,533
868	32	699	237	64	116	1,414	3,615	50	760	11,261	3,142	14,403
877	30	790	324	60	185	1,643	4,401	54	759	14,406	3,297	17,793
900	6	715	295	89	177	2,644	3,148	48	943	12,842	3,322	16,164
1,202	12	1,223	396	84	164	2,134	3,491	54	1,013	14,630	4,341	18,971
1,175	2	1,107	317	61	178	2,703	2,849	66	945	13,909	4,490	18,399
1,194	1	1,028	407	140	163	2,789	3,120	51	1,017	13,907	5,149	19,056
1,354	...	1,133	560	103	276	2,608	3,161	51	976	16,000	4,934	20,934
1,350	...	1,367	257	107	237	3,732	2,502	51	970	14,438	4,893	19,331
1,555	75	1,057	287	134	209	4,132	3,075	48	948	16,161	5,908	22,069
1,271	50	954	323	137	174	4,117	3,091	52	835	14,956	5,819	20,805
1,464	34	1,111	422	156	116	3,131	3,119	44	896	14,652	5,770	20,422
18,173	454	17,652	5,862	1,472	3,393	42,701	54,793	1,005	16,347	241,465	77,718	319,183
908'65	22'70	882'60	293'10	73'60	169'65	2,135'05	2,739'65	50'25	817'35	12,073'25	3,885'90	15,959'15

*Table showing the principal diseases treated in the*

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	8	123	178	104	...	...	...	210	...	2	472
1878	44	67	55	475	36	45	5	34	113	2	1	313
1879	...	...	15	216	38	48	5	27	139	...	4	194
1880	55	...	15	124	83	46	14	43	150	2	8	305
1881	69	...	13	141	80	34	35	21	147	...	...	289
1882	230	209	18	189	105	49	42	24	171	1	5	465
1883	...	48	10	172	92	51	12	21	191	2	2	551
1884	71	...	25	231	70	53	50	30	172	4	5	510
1885	7	78	26	273	69	49	87	45	196	...	3	791
1886	...	...	60	305	81	49	108	71	214	6	6	863
1887	...	8	45	348	78	31	53	91	169	...	2	777
1888	10	...	51	288	72	42	37	66	218	...	10	867
1889	4	...	46	716	65	56	48	9	229	1	9	823
1890	...	410	54	654	59	62	24	...	276	7	2	1,014
1891	...	...	70	943	73	102	37	...	295	13	5	1,222
1892	7	209	118	1,067	63	72	39	...	316	1	1	939
1893	...	...	47	1,158	89	85	53	62	314	...	2	1,300
1894	...	...	21	1,662	276	135	50	298	287	...	16	2,010
1895	...	32	156	2,134	308	166	80	310	515	...	17	2,436
1896	...	...	119	2,017	203	92	73	281	406	...	26	2,193
TOTAL	497	1,059	1,087	13,051	2,044	1,267	852	1,433	4,729	39	126	18,354
Average for 20 years	24'85	53'45	54'35	697'55	102'20	63'35	42'60	71'65	236'45	1'95	6'30	917'70

*Medical Institutions of the SHAHPURA STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhoea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
134	4	224	...	...	8	6	984	27	144	2,628	1,720	4,348
122	...	149	175	9	51	400	847	32	95	3,070	683	3,753
99	1	146	39	10	31	292	711	19	111	2,145	594	2,739
96	2	153	49	6	40	376	878	22	92	2,559	600	3,159
98	...	132	37	...	19	343	918	27	108	2,511	611	3,122
102	1	160	84	1	11	322	856	18	153	3,216	662	3,878
125	...	167	59	3	24	375	956	24	166	3,051	846	3,897
184	1	196	86	3	20	365	861	25	148	3,110	751	3,861
190	...	210	115	13	21	444	879	33	161	3,690	872	4,562
285	1	311	73	12	34	443	1,103	24	202	4,311	983	5,294
287	1	183	158	25	28	322	824	20	227	3,677	823	4,500
250	...	183	93	17	29	307	867	33	234	3,674	1,117	4,791
325	...	462	88	14	37	362	886	35	200	4,415	1,102	5,517
346	1	443	132	18	47	376	1,060	49	282	5,316	1,268	6,584
412	1	511	227	15	61	496	1,142	42	300	5,968	1,493	7,461
424	...	496	395	15	72	327	1,121	50	297	6,649	1,347	7,996
345	111	393	113	23	63	466	706	51	558	5,939	1,168	7,107
737	83	581	158	32	60	1,365	1,816	16	1,243	10,846	1,868	12,714
707	138	861	193	34	94	1,564	1,459	29	1,249	12,482	2,441	14,923
630	266	552	224	70	47	1,459	1,389	20	1,106	11,173	3,057	14,230
5,898	611	6,513	2,498	320	797	10,410	20,263	596	7,076	100,420	24,006	124,426
294'90	30'55	325'65	124'90	16'00	39'85	520'50	1,013'15	29'80	353'80	5,021'50	1,200'30	6,221'80

Table showing the principal diseases treated in the

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877 . .	...	...	504	1,213	288	...	...	...	574	...	21	298
1878 . .	1	190	516	2,120	312	219	14	178	531	7	32	275
1879 . .	...	1	438	1,644	339	156	26	105	511	7	30	312
1880 . .	3	...	315	1,320	333	115	10	102	538	8	27	317
1881 . .	...	...	209	1,525	353	149	124	109	520	5	14	387
1882 . .	...	21	237	1,439	430	176	127	173	619	3	26	458
1883 . .	...	71	252	1,486	408	266	52	196	688	13	38	633
1884 . .	...	...	303	2,140	402	209	26	211	799	15	27	672
1885 . .	...	519	361	1,596	359	186	31	148	744	5	32	781
1886 . .	2	...	273	1,740	312	186	42	179	668	5	31	795
1887 . .	...	6	307	1,746	343	196	14	147	666	13	39	636
1888 . .	...	...	330	1,763	382	160	34	164	709	170	29	805
1889 . .	1	377	400	3,211	368	193	31	187	715	162	818	490
1890 . .	7	...	445	2,690	454	176	70	208	928	33	36	1,165
1891 . .	2	4	526	3,845	515	193	89	329	1,185	13	54	1,447
1892 . .	...	857	868	7,694	699	333	229	499	1,634	48	45	1,972
1893 . .	...	...	599	5,631	808	343	236	433	1,906	76	40	3,133
1894 . .	33	...	706	7,486	864	311	481	557	2,087	85	52	3,426
1895 . .	44	...	1,163	7,593	871	417	317	707	2,095	77	28	4,406
1896 . .	1	93	1,609	7,757	1,041	549	311	702	2,115	34	35	3,837
TOTAL .	94	2,139	10,451	65,639	9,881	4,533	2,264	5,334	20,232	779	1,454	26,247
Average for 20 years .	4'70	106'95	522'55	3,281'05	494'05	226'65	113'20	266'70	1,011'60	38'95	72'70	1,312'35

*Medical Institutions of the KOTAH STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhoea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
271	55	396	...	...	85	7	1,094	18	170	4,094	2,878	7,872
258	2	424	313	47	104	1,021	1,146	21	182	7,913	1,798	9,711
250	2	408	161	25	155	864	1,095	35	142	6,706	1,357	8,063
248	1	430	148	19	159	618	1,135	35	249	6,130	1,297	7,427
331	2	365	141	14	177	724	1,131	13	235	6,528	1,303	7,831
356	5	437	244	30	255	1,262	1,412	26	313	8,049	1,639	9,688
408	19	442	278	22	169	1,350	1,760	56	342	8,949	1,711	10,660
411	6	557	257	31	159	1,651	1,804	44	399	10,123	1,962	12,085
363	8	535	389	28	192	1,425	1,287	26	246	9,261	1,781	11,042
399	4	665	238	33	155	1,429	1,470	30	294	8,950	1,707	10,657
343	9	494	251	25	136	1,220	1,349	37	278	8,255	1,775	10,030
402	4	448	208	32	201	1,357	1,156	41	338	8,733	2,323	11,056
482	7	671	359	51	235	1,425	1,125	33	348	11,689	2,127	13,816
691	17	1,160	352	62	311	2,029	1,338	36	427	12,635	3,718	16,353
654	27	1,169	507	130	349	2,940	1,779	33	478	16,268	5,418	21,686
930	33	2,111	887	222	563	3,915	2,530	65	688	26,822	7,431	34,253
1,702	41	2,642	468	191	716	5,578	3,758	122	875	29,298	8,977	38,275
1,390	58	3,232	699	235	698	5,924	4,519	100	1,023	33,968	9,503	43,471
1,624	76	3,885	995	343	780	7,770	4,080	96	996	38,372	11,347	49,719
1,727	107	3,527	1,432	323	781	7,124	4,439	84	1,003	38,726	10,619	49,345
13,240	483	23,998	8,327	1,863	6,389	49,633	39,407	951	9,031	302,369	80,671	383,040
662'00	24'15	1,199'90	416'35	93'15	319'45	2,481'65	1,970'35	47'55	451'55	15,118'45	4,933'55	19,152'00



Table showing the principal diseases treated in the

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhœa and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	80	810	1,390	174	...	...	...	311	...	27	282
1878	10	579	555	2,897	187	126	15	73	320	50	30	206
1879	10	...	611	3,925	351	184	73	46	350	36	33	199
1880	2	...	528	1,847	536	428	87	33	482	28	15	301
1881	2	6	581	2,859	457	380	123	64	539	41	27	428
1882	8	...	567	2,084	403	234	118	86	447	34	28	663
1883	3	...	526	2,391	562	333	42	111	565	49	63	869
1884	7	...	577	3,545	760	444	55	232	837	89	94	1,176
1885	5	148	881	3,969	644	438	73	260	890	112	70	1,531
1886	17	...	528	4,036	503	331	63	282	740	58	45	1,444
1887	48	...	681	4,109	438	223	43	202	700	20	39	956
1888	5	...	564	3,981	525	240	62	306	640	34	19	1,700
1889	6	580	947	5,856	402	233	64	219	883	13	25	1,838
1890	1	...	774	4,949	429	253	60	196	870	14	33	2,285
1891	...	31	793	4,628	460	289	59	213	935	22	20	2,887
1892	4	172	1,041	6,904	477	320	120	386	1,014	27	41	2,494
1893	4	...	953	6,041	493	321	186	473	1,275	46	51	4,145
1894	12	...	1,085	7,930	664	445	210	586	1,607	52	54	5,389
1895	8	...	1,278	7,865	833	490	284	627	1,902	34	45	6,668
1896	4	371	1,497	6,953	574	405	243	559	1,664	40	47	5,895
TOTAL	156	1,967	15,777	88,159	9,872	6,117	1,980	4,954	16,971	799	806	41,356
Average for 20 years	7'80	98'35	788'85	4,407'95	493'60	305'85	99'00	247'70	848'55	39'95	40'30	2,067'80

*Medical Institutions of the JHALAWAR STATE from 1877 to 1896.*

Diseases of the ear.	Heart diseases.	Respiratory affections.	Diarrhea.	Liver diseases.	Spleen diseases.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
298	5	614	...	...	124	7	886	31	209	5,248	3,146	8,394
282	43	475	354	71	146	550	736	20	210	7,935	1,674	9,609
122	38	616	510	49	216	784	823	69	89	9,134	2,668	11,802
164	83	1,263	513	133	238	1,175	990	24	102	8,972	2,219	11,221
540	71	1,252	767	125	376	1,080	1,371	61	226	11,376	2,401	13,777
584	58	1,192	392	156	205	1,502	1,237	75	382	10,455	2,491	12,946
629	81	1,558	515	165	215	2,100	1,528	122	567	12,094	3,410	16,404
633	213	1,512	508	157	288	2,830	1,989	177	643	16,766	3,583	20,349
557	176	1,793	1,100	149	204	2,954	1,705	175	595	18,529	4,328	22,857
443	132	1,445	530	133	247	2,637	1,794	198	446	16,052	4,413	20,465
388	100	1,650	489	78	309	2,421	1,854	174	391	15,313	4,046	19,359
700	42	1,830	417	107	332	3,017	1,128	109	559	16,317	5,448	21,765
834	46	2,149	750	98	357	2,593	1,310	65	520	19,797	5,441	25,238
875	46	2,473	499	107	446	3,124	1,287	79	508	19,308	5,941	25,249
918	22	1,992	674	108	319	3,493	1,334	115	613	19,825	6,516	26,341
882	58	2,315	819	201	434	3,903	1,507	116	605	23,930	7,775	31,705
1,111	83	3,023	615	253	525	5,595	2,801	97	818	28,909	8,085	36,994
1,307	75	3,661	809	238	630	7,189	3,779	88	1,336	37,146	9,382	46,528
1,409	58	3,823	924	192	832	8,616	4,231	138	1,378	41,635	10,832	52,467
1,354	55	3,090	1,212	163	554	7,977	3,446	177	1,259	37,539	10,961	48,500
13,930	1,485	37,726	12,397	2,683	7,097	63,547	35,745	2,110	11,546	377,180	104,790	481,970
696'50	74'25	1,886'30	619'85	134'15	354'85	3,177'35	1,787'25	105'50	577'30	18,859'00	5,239'50	24,098'50

Table showing the principal diseases treated in the Medical

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhœa and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877 . .	...	...	260	1,089	414	...	...	...	211	...	27	226
1878 . .	...	71	395	1,898	348	177	53	29	230	16	14	211
1879 . .	...	...	217	2,799	475	141	75	42	340	16	17	332
1880 . .	1	...	201	2,887	491	143	31	35	335	15	13	514
1881 . .	...	...	380	2,949	387	168	234	73	365	18	3	430
1882 . .	...	388	303	1,851	358	149	226	66	338	18	19	484
1883 . .	...	...	371	1,584	596	301	74	168	517	14	20	530
1884 . .	...	...	344	2,302	914	422	107	226	695	39	32	710
1885 . .	9	...	694	2,809	937	572	202	275	860	82	24	1,244
1886 . .	5	...	1,494	4,874	1,197	686	203	577	1,519	78	32	1,822
1887 . .	3	40	1,227	5,847	940	554	273	660	1,544	111	25	1,807
1888 . .	2	...	1,413	8,277	1,309	836	930	1,296	2,246	283	75	3,404
1889 . .	19	19	2,172	17,542	1,333	969	812	1,289	2,462	217	65	3,889
1890 . .	13	53	1,803	18,791	1,573	1,032	690	1,551	3,132	114	69	3,947
1891 . .	2	32	1,829	17,479	1,589	1,093	941	1,456	3,310	127	66	4,708
1892 . .	9	1,237	2,061	22,186	1,710	1,085	531	1,501	2,906	150	61	5,035
1893 . .	...	...	1,705	23,846	2,028	1,155	500	2,100	3,371	152	79	6,151
1894 . .	19	...	2,190	26,836	2,565	1,409	808	2,135	4,046	146	41	7,377
1895 . .	3	1	2,395	25,397	2,493	1,298	822	2,319	4,042	147	30	7,755
1896 . .	15	674	2,821	23,419	1,926	1,192	671	1,845	3,371	54	18	7,556
TOTAL . .	100	2,515	24,375	215,662	23,573	13,382	8,183	17,583	35,840	1,797	730	58,132
Average for 20 years . .	5'00	125'75	1,218'75	10,783'10	1,178'65	669'10	409'15	879'15	1,792'00	89'85	36'50	2,906'60

*Institutions of the MEWAR STATE from 1877 to 1896.*

Diseases of the ear.	Diseases of the heart.	Respiratory affections.	Diarrhoea.	Diseases of the liver.	Diseases of the spleen.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
277	2	226	...	...	100	28	934	2	222	4,018	3,927	7,945
237	42	461	274	19	110	1,345	903	7	205	8,045	1,855	9,900
282	42	416	168	26	232	1,164	1,794	25	285	8,888	1,604	10,492
259	27	536	233	54	251	1,053	1,749	39	306	9,273	1,921	11,194
350	20	681	326	47	104	731	2,411	1	364	10,042	1,626	11,668
346	33	481	401	46	111	696	1,793	2	344	8,453	1,550	10,003
546	27	619	268	94	99	1,338	1,904	11	429	9,480	1,933	11,413
637	51	820	366	75	161	1,693	2,443	21	732	12,790	2,177	14,967
770	53	1,436	698	95	298	1,898	3,504	28	771	17,259	3,702	20,961
1,318	103	1,883	1,197	117	573	2,691	4,619	55	1,230	26,273	4,715	30,988
1,302	232	2,111	2,129	124	574	3,327	5,874	78	1,049	29,831	6,152	35,983
2,054	98	3,445	1,686	161	685	6,018	6,271	108	1,984	42,581	12,556	55,137
2,207	122	4,208	2,281	204	1,084	7,280	7,983	103	2,417	58,677	13,533	72,210
2,514	154	6,376	2,514	269	1,061	8,140	8,371	86	2,553	64,806	15,897	80,703
2,377	75	5,318	2,267	336	970	9,953	8,867	132	2,764	65,711	17,046	82,757
2,580	89	6,281	3,317	321	1,010	8,673	7,733	118	2,474	71,071	18,518	89,589
2,713	136	9,528	2,258	398	1,389	9,061	8,117	126	2,466	77,279	19,986	97,265
3,915	137	11,155	3,275	477	1,949	13,555	12,349	93	2,774	97,241	26,008	123,249
3,834	156	10,515	2,987	400	1,651	18,765	14,076	83	2,991	102,160	25,487	127,647
4,018	131	7,366	3,428	462	1,328	19,211	13,747	159	2,614	96,026	23,284	119,310
32,536	1,730	73,895	30,073	3,745	13,740	116,620	115,442	1,277	28,974	819,904	203,477	1,023,381
1,026'80	86'50	3,694'75	1,503'65	187'25	687'00	5,831'00	5,772'10	63'85	1,448'70	40,995'20	10,173'85	51,169'05

Table showing the principal diseases treated in the Medical

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	...	159	644	60	...	...		222	...	9	179
1878	...	129	63	932	40	60	44	6	119	7	1	176
1879	...	...	239	1,350	119	154	98	26	237	8	12	182
1880	...	...	90	1,365	100	125	65	26	166	20	18	188
1881	...	...	42	520	86	77	41	9	157	16	4	137
1882	...	...	52	1,011	84	75	117	9	165	11	15	185
1883	...	...	128	1,255	137	131	177	18	217	2	13	340
1884	...	...	140	992	86	103	304	22	174	...	7	277
1885	...	136	341	1,176	201	100	528	7	136	1	1	407
1886	...	...	467	974	203	95	218	8	144	...	...	526
1887	...	...	321	980	133	98	259	9	198	...	...	723
1888	...	...	397	1,406	208	131	404	8	216	...	...	1,080
1889	...	...	446	1,918	172	115	454	6	214	1	2	1,689
1890	...	...	186	1,704	221	95	652	42	196	1	10	2,409
1891	...	100	110	1,486	192	94	304	45	333	...	12	2,312
1892	...	21	131	1,873	133	112	803	76	294	...	12	1,906
1893	1	...	122	2,016	199	95	1,199	82	423	10	19	2,400
1894	...	...	216	2,245	207	151	1,451	135	874	22	18	3,481
1895	...	...	275	2,824	186	90	1,583	28	481	3	...	3,306
1896	...	...	314	2,297	184	75	887	19	355	...	...	3,066
TOTAL	1	386	4,239	28,968	2,951	1,977	9,588	581	5,321	102	153	25,069
Average for 20 years	0.05	19.30	211.95	1,448.40	147.55	98.85	479.40	29.05	266.05	5.10.	7.65	1,253.45

*Institutions of the PARTABGARH STATE from 1877 to 1896.*

Diseases of the ear.	Diseases of the heart.	Respiratory affections.	Diarrhea.	Diseases of the liver.	Diseases of the spleen.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
205	6	264	...	...	79	4	826	9	112	2,778	2,877	5,655.
130	2	191	75	121	33	610	682	4	78	3,503	406	3,909
283	23	325	451	48	145	582	1,461	47	135	6,025	1,079	7,104
170	17	371	184	21	102	635	890	21	103	4,677	752	5,429
173	14	284	97	4	54	911	934	25	119	3,704	582	4,286
214	21	290	179	9	87	1,248	850	23	125	4,770	586	5,356
296	21	394	251	16	113	1,658	850	34	175	6,226	744	6,970
186	23	364	162	17	103	1,167	690	15	157	4,989	737	5,726
71	11	206	138	42	71	315	353	3	123	4,367	465	4,832
68	6	263	101	31	78	336	458	1	115	4,100	448	4,548
56	4	214	100	42	83	351	387	...	157	4,115	437	4,552
75	...	337	102	87	70	438	331	...	163	5,162	927	6,389
182		412	118	81	141	585	315	3	172	7,026	1,042	8,068
412	1	993	139	66	132	1,276	360	5	133	9,033	1,978	11,011
337	5	470	225	19	97	849	536	19	159	7,704	1,818	9,522
405	...	462	247	2	90	983	614	14	170	8,348	1,803	10,151
479	6	998	145	32	105	1,351	847	4	252	10,785	2,285	13,070
638	32	1,342	174	56	289	1,993	1,451	4	127	14,906	2,737	17,643
477	4	633	186	12	108	1,967	512	17	137	12,879	2,296	15,175
491	2	451	69	3	76	1,438	237	9	116	10,089	1,562	11,651
5,348	198	9,314	3,150	709	2,065	18,697	13,584	257	2,828	135,486	25,561	161,047
267*40	9*90	465*70	157*50	35*45	103*25	934*85	679*20	12*85	141*40	6,774*30	1,278*05	8,052*35

Table showing the principal diseases treated in the Medical

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhœa and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.	Diseases of the eye.
1877	...	...	288	842	107	...	...	...	214	...	5	245
1878	...	565	182	1,092	72	67	1	...	71	...	1	157
1879	...	2	242	1,003	153	126	12	3	205	...	...	195
1880	...	...	174	895	163	148	8	5	223	22	8	437
1881	1	...	169	839	130	99	182	...	259	15	9	613
1882	1	...	127	846	103	100	229	3	223	15	9	846
1883	1	...	127	989	86	90	312	17	158	14	8	1,134
1884	4	...	162	1,088	101	124	541	3	165	22	11	1,435
1885	2	...	280	1,586	142	126	501	...	208	41	9	1,746
1886	8	...	249	1,688	156	152	674	17	226	63	9	1,736
1887	...	...	351	2,304	178	131	780	23	247	48	6	2,081
1888	2	...	319	1,883	199	184	964	43	304	...	22	3,198
1889	...	21	348	2,856	167	144	933	48	238	...	19	3,154
1890	2	...	208	2,893	152	103	99	203	329	21	13	2,894
1891	2	9	273	2,218	113	105	109	140	465	10	40	2,929
1892	...	107	184	2,579	90	49	77	80	293	9	1	3,084
1893	...	3	264	3,179	73	36	97	86	336	7	3	3,107
1894	...	...	334	3,553	42	40	115	73	316	...	4	3,951
1895	...	...	383	3,330	51	60	173	81	297	2	...	3,738
1896	...	...	403	2,676	44	30	168	49	359	5	...	3,079
TOTAL	24	707	5,067	28,338	2,322	1,914	5,975	874	5,136	294	177	40,659
Average for 20 years	1'20	35'35	253'35	1,916'90	116'10	95'70	298'75	43'70	256'80	14'70	8'85	2,032'95

*Institutions of the BANSWARA STATE from 1877 to 1896.*

Diseases of the ear.	Diseases of the heart.	Respiratory affections.	Diarrhoea.	Diseases of the liver.	Diseases of the spleen.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	All others.	GRAND TOTAL.
125	13	308	...	...	44	8	423	40	222	2,834	1,955	4,839
29	2	281	259	42	22	405	206	5	41	3,500	721	4,221
77	...	454	319	15	112	470	277	2	101	3,768	738	4,505
242	...	734	205	20	118	849	683	38	165	5,137	1,186	6,323
387	13	670	197	23	91	978	806	60	302	5,843	1,433	7,276
383	7	520	233	30	95	1,120	980	55	263	6,188	1,368	7,556
361	3	575	231	45	73	937	1,127	45	267	6,600	1,344	7,944
412	7	675	276	39	59	1,068	980	39	348	7,559	1,442	9,001
476	19	1,015	449	63	123	1,172	1,124	40	296	9,419	1,780	11,199
593	6	969	338	88	127	1,210	1,326	49	338	10,022	1,915	11,937
567	11	969	535	79	164	1,064	1,503	46	365	11,452	2,005	13,458
783	...	1,481	590	106	172	1,486	1,006	52	552	13,346	3,044	16,390
795	...	1,256	749	86	168	1,589	982	33	516	14,102	3,391	17,493
679	1	1,339	355	49	129	1,540	814	25	366	12,213	3,163	15,376
503	2	1,115	371	36	119	1,974	1,251	147	256	12,187	3,715	15,902
562	15	946	586	19	67	1,721	1,728	125	199	12,521	3,456	15,977
568	11	1,366	575	19	93	1,878	1,798	70	211	13,780	3,352	17,132
459	7	1,199	661	13	114	1,763	2,260	57	199	15,160	3,519	18,679
548	6	1,664	631	15	77	1,918	2,419	64	248	15,705	3,684	19,389
595	2	1,127	663	8	50	2,141	2,551	116	276	15,242	3,475	18,717
9,144	125	18,663	8,223	795	2,017	25,291	24,244	1,108	5,531	196,623	46,687	243,315
457'20	6'25	933'15	411'15	39'75	100'55	1,264'55	1,212'20	55'40	270'55	9,831'40	2,334'35	12,165'75



*Table showing the principal diseases treated in the Medical*

YEAR.			Small-pox.	Cholera.	Dysentery.	Malaria Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.
1877	.	.	...	...	...	...	...	...	...	...	...	...	...
1878	.	.	...	...	...	...	...	...	...	...	...	...	...
1879	.	.	...	...	...	...	...	...	...	...	...	...	...
1880	.	.	...	...	...	...	...	...	...	...	...	...	...
1881	.	.	...	...	...	...	...	...	...	...	...	...	...
1882	.	.	...	...	...	...	...	...	...	...	...	...	...
1883	.	.	...	...	...	...	...	...	...	...	...	...	...
1884	.	.	...	...	...	...	...	...	...	...	...	...	...
1885	.	.	...	...	...	...	...	...	...	...	...	...	...
1886	.	.	...	...	...	...	...	...	...	...	...	...	...
1887	.	.	...	...	...	...	...	...	...	...	...	...	...
1888	.	.	...	...	...	...	...	...	...	...	...	...	...
1889	.	.	...	...	...	...	...	...	...	...	...	...	...
1890	.	.	...	...	...	...	...	...	...	...	...	...	...
1891	.	.	...	...	...	...	...	...	...	...	...	...	...
1892	.	.	...	...	71	1,294	43	39	9	56	181	2	...
1893	.	.	...	...	122	1,807	69	48	22	76	255	...	1
1894	.	.	...	...	198	1,094	41	16	68	26	278	2	...
1895	.	.	...	...	133	721	47	18	27	62	283	...	...
1896	.	.	1	...	164	313	60	38	26	274	366	...	...
TOTAL			1	...	688	5,229	260	159	152	494	1,363	4	1
Average for 5 years .			0.20	0.00	137.60	1,045.80	52.00	31.80	30.40	98.80	272.60	0.80	0.20

*Institutions of the JAISALMER STATE from 1892 to 1896.*

Diseases of the eye.	Diseases of the ear.	Diseases of the heart.	Respiratory affections.	Diarrhoea.	Diseases of the liver.	Diseases of the spleen.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	Total.	REMARKS.
...	...	...	...	...	...	...	...	...	...	...	...	This Dispensary, the only one in the State, was opened on the 15th April 1892.
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142	123	9	172	97	26	24	308	377	27	66	3,066	
180	158	3	299	127	40	47	232	534	80	66	4,166	
189	149	...	435	69	19	55	151	701	46	29	3,566	
228	183	2	244	112	26	53	353	765	52	123	3,432	
276	206	58	391	312	400	64	430	918	50	135	4,482	
1,015	819	72	1,541	717	511	243	1,474	3,295	255	419	18,712	
203°00	163°80	14°40	308°20	143°40	102°20	48°60	204°80	659°00	51°00	83°80	3,742°40	

Table showing the principal diseases treated in the Medical

YEAR,	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.
1876	...	...	...	...	...	...	...	...	...	...	...
1877	...	...	...	...	...	...	...	...	...	...	...
1878	...	...	...	...	...	...	...	...	...	...	...
1879	...	...	...	...	...	...	...	...	...	...	...
1880	...	...	...	...	...	...	...	...	...	...	...
1881	...	...	...	...	...	...	...	...	...	...	...
1882	...	...	...	...	...	...	...	...	...	...	...
1883	...	...	...	...	...	...	...	...	...	...	...
1884	...	...	...	...	...	...	...	...	...	...	...
1885	...	...	...	...	...	...	...	...	...	...	...
1886	...	...	...	...	...	...	...	...	...	...	...
1887	...	...	...	...	...	...	...	...	...	...	...
1888	...	...	...	...	...	...	...	...	...	...	...
1889	...	...	...	...	...	...	...	...	...	...	...
1890	...	...	...	...	...	...	...	...	...	...	...
1891	...	...	...	...	...	...	...	...	...	...	...
1892	...	...	...	...	...	...	...	...	...	...	...
1893	...	...	...	...	...	...	...	...	...	...	...
1894	...	...	...	...	...	...	...	...	...	...	...
1895	...	6	46	231	79	26	19	39	208	7	2
1896	...	...	99	384	124	57	30	389	373	5	2
TOTAL	...	6	145	615	203	83	49	428	581	12	4
Average for 2 years	0'00	3'00	72'50	307'50	101'50	41'50	24'50	214'00	290'50	6'00	2'00

*Institutions of the KISHANGARH STATE for 1895 and 1896.*

Diseases of the eye.	Diseases of the ear.	Diseases of the heart.	Respiratory affections.	Diarrhoea.	Diseases of the liver.	Diseases of the spleen.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	TOTAL.	REMARKS.
...	...	...	...	...	...	...	...	...	...	...	...	Not available.
...	...	...	...	...	...	...	...	...	...	...	...	
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486	336	22	224	107	34	38	592	318	13	244	3,077	
715	585	40	312	222	677	153	812	1,499	52	168	6,698	
1,201	921	62	536	329	711	191	1,404	1,817	65	412	9,775	
600'50	460'50	31'00	268'00	164'50	355'50	95'50	702'00	908'50	32'50	206'00	4,887'50	

*Table showing the principal diseases treated in the Medical*

YEAR,	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.
1876	...	...	...	...	...	...	...	...	...	...	...
1877	...	...	...	...	...	...	...	...	...	...	...
1878	...	...	...	...	...	...	...	...	...	...	...
1879	...	...	...	...	...	...	...	...	...	...	...
1880	...	...	...	...	...	...	...	...	...	...	...
1881	...	...	...	...	...	...	...	...	...	...	...
1882	...	...	...	...	...	...	...	...	...	...	...
1883	...	...	...	...	...	...	...	...	...	...	...
1884	...	...	...	...	...	...	...	...	...	...	...
1885	...	...	...	...	...	...	...	...	...	...	...
1886	...	...	...	...	...	...	...	...	...	...	...
1887	...	...	...	...	...	...	...	...	...	...	...
1888	...	...	...	...	...	...	...	...	...	...	...
1889	...	...	...	...	...	...	...	...	...	...	...
1890	...	...	...	...	...	...	...	...	...	...	...
1891	...	...	...	...	...	...	...	...	...	...	...
1892	...	...	...	...	...	...	...	...	...	...	...
1893	...	...	...	...	...	...	...	...	...	...	...
1894	...	...	...	...	...	...	...	...	...	...	...
1895	6	...	85	898	134	33	6	46	209	...	11
1896	...	8	181	557	155	35	26	492	215	...	4
TOTAL	6	8	266	1,455	289	68	32	538	424	...	15
Average for 2 years.	3'00	4'00	133'00	727'50	144'50	34'00	16'00	269'00	212'00	0'00	7'50

*Institutions of the BUNDI STATE for 1895 and 1896.*

Diseases of the eye.	Diseases of the ear.	Diseases of the heart.	Respiratory affections.	Diarrhoea.	Diseases of the liver.	Diseases of the spleen.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	TOTAL.	REMARKS.
...	...	...	...	...	...	...	...	...	...	...	...	Not available.
...	...	...	...	...	...	...	...	...	...	...	...	
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202	264	...	306	61	6	16	587	505	12	100	3,487	
253	311	22	232	211	108	14	649	682	6	249	4,410	
455	575	22	538	272	114	30	1,236	1,187	18	349	7,897	
227'50	287'50	11'00	269'00	136'00	57'00	15'00	618'00	593'50	9'00	174'50	3,948'50	

*Table showing the principal diseases treated in the Medical*

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fevers, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.
1876	...	...	...	...	...	...	...	...	...	...	...
1877	...	...	...	...	...	...	...	...	...	...	...
1878	...	...	...	...	...	...	...	...	...	...	...
1879	...	...	...	...	...	...	...	...	...	...	...
1880	...	...	...	...	...	...	...	...	...	...	...
1881	...	...	...	...	...	...	...	...	...	...	...
1882	...	...	...	...	...	...	...	...	...	...	...
1883	...	...	...	...	...	...	...	...	...	...	...
1884	...	...	...	...	...	...	...	...	...	...	...
1885	...	...	...	...	...	...	...	...	...	...	...
1886	...	...	...	...	...	...	...	...	...	...	...
1887	...	...	...	...	...	...	...	...	...	...	...
1888	...	...	...	...	...	...	...	...	...	...	...
1889	...	...	...	...	...	...	...	...	...	...	...
1890	...	...	...	...	...	...	...	...	...	...	...
1891	...	...	...	...	...	...	...	...	...	...	...
1892	...	...	...	...	...	...	...	...	...	...	...
1893	...	...	...	...	...	...	...	...	...	...	...
1894	...	...	...	...	...	...	...	...	...	...	...
1895	...	...	18	304	14	16	11	12	23	2	...
1896	1	...	25	392	79	27	47	320	157	7	...
TOTAL	1	...	43	696	93	43	58	332	180	9	...
Average for 2 years.	0'50	0'00	21'50	348'00	45'50	21'50	29'00	166'00	90'00	4'50	0'00

*Institutions of the KUSHALGARH STATE for 1895 and 1896.*

Diseases of the eye.	Diseases of the ear.	Diseases of the heart.	Respiratory affections.	Diarrhoea.	Diseases of the liver.	Diseases of the spleen.	Diseases of the skin.	Ulcers, abscesses, etc.	Poisons.	Injuries.	TOTAL.	REMARKS.
...	...	...	...	...	...	...	...	...	...	...	...	Not available.
...	...	...	...	...	...	...	...	...	...	...	...	
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127	17	...	46	15	...	...	39	3	8	8	663	
684	78	255	231	234	15	32	118	463	1	40	3,206	
811	95	255	277	249	15	32	157	466	9	48	3,869	
405'50	47'50	127'50	138'50	124'50	7'50	16'00	78'50	233'00	4'50	24'00	1,034'50	



Table showing the principal diseases treated in the Medical

YEAR.	Small-pox.	Cholera.	Dysentery.	Malarial Fever, Ague and Remittent.	Syphilitic affections.	Gonorrhoea and its complications.	Worms.	Debility and old age.	Rheumatic affections.	Tuberculosis.	Leprosy.
1876	...	...	...	...	...	...	...	...	...	...	...
1877	...	...	...	...	...	...	...	...	...	...	...
1878	...	...	...	...	...	...	...	...	...	...	...
1879	...	...	...	...	...	...	...	...	...	...	...
1880	...	...	...	...	...	...	...	...	...	...	...
1881	...	...	...	...	...	...	...	...	...	...	...
1882	...	...	...	...	...	...	...	...	...	...	...
1883	...	...	...	...	...	...	...	...	...	...	...
1884	...	...	...	...	...	...	...	...	...	...	...
1885	...	...	...	...	...	...	...	...	...	...	...
1886	...	...	...	...	...	...	...	...	...	...	...
1887	...	...	...	...	...	...	...	...	...	...	...
1888	...	...	...	...	...	...	...	...	...	...	...
1889	...	...	...	...	...	...	...	...	...	...	...
1890	...	...	...	...	...	...	...	...	...	...	...
1891	...	...	...	...	...	...	...	...	...	...	...
1892	...	...	...	...	...	...	...	...	...	...	...
1893	...	...	...	...	...	...	...	...	...	...	...
1894	...	...	...	...	...	...	...	...	...	...	...
1895	...	...	12	376	23	5	12	13	9	...	1
1896	...	45	61	749	31	26	49	77	73	...	1
TOTAL	...	45	73	1,125	54	31	61	90	82	...	2
Average for 2 years.	0'00	22'50	36'50	562'50	27'00	15'50	30'50	45'00	41'00	0'00	1'00

*Institutions of the DUNGARPUR STATE for 1895 and 1896.*

Diseases of the eye.	Diseases of the ear.	Diseases of the heart.	Respiratory affections.	Diarrhea.	Diseases of the liver.	Diseases of the spleen.	Diseases of the skin.	Ulcers and abscesses, etc.	Poisons.	Injuries.	TOTAL.	REMARKS.
...	...	...	...	...	...	...	...	...	...	...	...	Not available.
...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	
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...	...	...	...	...	...	...	...	...	...	...	...	
174	62	1	89	9	5	70	164	155	...	11	1,191	
648	122	24	178	52	126	86	482	577	8	43	3,458	
822	184	25	267	61	131	156	646	732	8	54	4,649	
411'00	92'00	12'50	133'50	30'50	65'50	78'00	323'00	366'00	4'00	27'00	2,324'50	

## CHAPTER VIII.

## INSANITY.

According to the Census of 1891 there were in the whole of Rajputana only 3,097 persons of unsound mind, of whom 2,024 were males and 1,073 females.

In 100,000 persons afflicted there were 19 males and 11 females under 20 years of age, 42 males and 22 females from 20 to 50 years, and 49 males and 38 females of 50 years and over.

The proportion of females afflicted is lower than that of males at all ages ; it is at its lowest at from 5 to 14 years, and at its highest at 45 years and over.

Insanity is most prevalent in the Mahajan caste and in the Shekh sect of Musalmans.

The proportion of the insane to 100,000 persons of the castes and tribes is as follows:—

Caste or tribe.	Males.	Females.	Both sexes.
Mahajan (Hindu and Jain) . . . . .	61	29	45
Shekh . . . . .	51	29	41
Kumhar . . . . .	40	25	33
Brahman . . . . .	38	22	31
Bhil . . . . .	39	17	28
Rajput . . . . .	31	15	24
Jat . . . . .	27	19	23
Mina . . . . .	22	16	19
Chamar . . . . .	21	14	18
Gujar . . . . .	21	9	16

The number of insane in the different States is as follows :—

STATES.	Total.	Male.	Female.	Per 1,000 of population.
Mewar . . . . .	416	276	140	24'0
Banswara . . . . .	7	7	...	} 4'4
Kushalgarh . . . . .	1	1	...	
Dungarpur . . . . .	23	14	9	13'89
Partabgarh . . . . .	37	27	10	42'1
Jodhpur . . . . .	836	534	302	33'1
Sirohi . . . . .	85	50	35	45'6
Jaisalmer . . . . .	44	33	11	38'0
Bikaner . . . . .	378	234	144	45'4
Jaipur . . . . .	384	261	123	13'5
Kishangarh . . . . .	70	43	27	55'9
Bharatpur . . . . .	76	60	16	11'7
Karauli . . . . .	42	19	23	26'8
Dholpur . . . . .	42	30	12	15'0
Alwar . . . . .	166	116	50	21'6
Jhalawar . . . . .	62	41	21	17'4
Tonk . . . . .	81	59	22	40'7
Bundi . . . . .	106	76	30	35'8
Kotah . . . . .	227	133	94	43'11
Shahpura . . . . .	14	10	4	21'9
RAJPUTANA . . . . .	3,097	2,024	1,073	25'34

All observers who mention the matter at all note the comparative rarity of the more violent forms of insanity which most commonly require confinement in an asylum.

Until quite recently such serious cases, when they got beyond the control of friends, were kept in the jails, in which they were secured by a more or less heavy chain attached to the wall. There was no treatment.

At Jaipur and Alwar there were small asylums called *pagalkhanas* under the Jail establishments, and in 1895, in the first-named Capital, a fine new series of buildings was constructed for these unfortunate patients. It is situated in a large garden, under the trees of which, or in an open *baradari* or summer-house, the men pass the day and at night sleep in a barrack. It is only occasionally, when a severe fit attacks them, that they have to be kept in cells. Melancholia is not very common. Dementia, generally

senile, is, however, often observed. General paralysis sometimes occurs but is not often seen in the asylum.

Persons of weak intellect are often sent to the hospital at Jaipur by order of the Courts, especially in cases of disputed ownership of property, incapacity of supporting a wife, or of fulfilling matrimonial obligations and responsibilities, petty crimes such as thefts and assaults, or in men, who have committed serious offences, and in consequence sometimes feign insanity, but not as a rule with success.

A few cases of puerperal mania are seen. Very little delusional insanity has come under observation at Jaipur. As far as experience there goes, women are more subject to perversion of the sexual instinct than men. Sometimes both men and women have to be locked up because they refuse to wear clothes, but a few days in the lunatic asylum will cure a good many of them as far as this weakness is concerned.

It is sometimes difficult to decide where religious exaltation ends and disease begins in these and similar cases amongst Hindus. The Aghoris, a sect of worshippers of Siva—as Aghornath, the Lord of Horrors—formerly flourished in Rajputana, chiefly in caves at Mount Abu, and I have myself seen one or two such persons, but it is believed that at the present day men who followed certain practices of this sect, *viz.*, devouring dead bodies, filth, and carrion, would be regarded as insane. Certain other devotees, it is reasonable to believe, are also more insane than their admirers would have us think.

Suicidal mania is occasionally seen, and cases in which men have attempted to kill their nearest relatives and have then tried to take their own lives in a fit of mania, in a *daura*, or fit, as it is called, have been admitted into the hospitals, at Jaipur.

It is not surprising that men of the Mahajan or the money-lending and shop-keeping classes come first in the proportion of insanes. Their women stand as high as those of the Shekhs, a Musalman sect, whose men come next to Mahajans. Many petty shop-keepers and workmen belong to the above-named Musalman tribe.

With the exception of the Bhils, those who live out-door lives and till the soil suffer the least.

The Bhil until recent times has been treated almost like a hunted animal, but even now he is a timorous individual, who lives a hard life in a wild country, and not unfrequently drinks crude spirit. The Gujars or shepherds come lowest of all. As regards zenana influence, it does not seem to be high, as the Rajputs, whose females are the most secluded, do not show a large proportion of insanes. The largest proportion of insanes was found in the Kishangarh State; the lowest in Jaipur.

The mortality amongst incarcerated insanes formerly was very high, as was to be expected under the conditions of their confinement. It is much less, however, in the new Jaipur asylum than in the old one. Beds are not provided, because the patients are generally dirty in their habits, but plenty of clean sand and sacking are given, and with these arrangements they are content. Diseases of the respiratory organs, diarrhoea, and dysentery terminate many cases.

Insanity from excessive use of *bhang* or opium has not been observed in Jaipur to be as common as was believed.

Hydrocephalus, as a cause of idiocy, is not of importance. The condition is not uncommon, but in Rajputana the children who are so affected generally die. Some seem to have done well at first by tapping, but have generally been lost sight of after a time, and have probably died. I have twice operated with success in cases of meningocele.

Women sometimes jump into wells when suffering from puerperal mania and not unfrequently fall into them when attacked with epileptic fits, though epileptics are perhaps more often burnt by falling into the *chulas* or cooking-places. Much learning does not often make a man mad in this province; disappointed officials and courtiers, men and women who have lost property or relations in a sudden and calamitous manner, especially those who have been deprived of children, not unfrequently, however, become insane.

The following information has been obtained regarding the different States:—

#### MEWAR STATE.

*Mewar—416. Banswara—7. Partabgarh—37. Kushalgarh—1.*

#### UDAIPUR.

There are three sheds near the Walter Hospital which form a combined *pagalkhana* and *mahtajkhana*, that is, asylum for lunatics and indigent persons. The wretched people are provided with a mat or *darri* to sit on, and are chained, if necessary, to a log or stone which is fixed in the ground. Nine individuals, of whom two were women, were confined in this place a short time ago. It is proposed to build a suitable house very shortly.

Criminal lunatics are confined in the Jail. There is no provision in the district. At Banswara and Partabgarh no special arrangements are made, unless relations and friends are unable to take care of lunatics, in which case they are kept in rooms which are attached to the dispensaries.

#### WESTERN RAJPUTANA STATES.

*In Jodhpur—836. In Sirohi—85. In Faisalmer—44.*

#### JODHPUR.

Persons of the upper classes are kept out of sight as much as possible and are said to be kindly treated.

In the lower classes lunacy chiefly affects beggars, and is stated to be most frequent amongst persons who use Indian hemp. It is only when they become a nuisance and are not supported by their friends, or are not able to live by begging, that they are provided for by the State, in which case they are fed and lodged in a disused ward of the old jail building, or in the new prison, and are looked after by the Jail officials.

In August 1896 there were three males in the former and one woman in the latter.



The whole arrangement is in the hands of the Medical Officer of the Jail.

Light work is given. There are no amusements though a little tobacco is sometimes given to the patients.

*Jhalawar—62. Kotah—227.*

Only dangerous lunatics are confined, and these are kept in cells outside the two jails where they cannot be satisfactorily treated. In some instances insanes have been sent to the Delhi Lunatic Asylum.

It is stated that lunacy is more common than is noted in the Census Returns, and that many unfortunates are chained up in their own houses.

#### TONK AND HARAOTI AGENCY.

*Tonk—81. Bundi—106. Shahpura—14.*

No information has been received.

*Ajmer-Merwara—17.*

There was formerly a small lunatic ward which was attached to the old City Dispensary. It could accommodate four inmates. No provision has been made in the new hospital, but all lunatics are sent as a temporary measure to the Jail, where there are six lunatic wards.

After a month or two a dangerous or helpless person is sent to the Delhi Lunatic Asylum. If not quite helpless he is made over to his friends.

## CHAPTER IX.

### EPIDEMICS.

#### CHOLERA.

The outbreaks of cholera have been referred to in the review of the Annual Reports. Dr. Moore was of opinion that the disease in some cases appeared to arise *de novo*, but the general consensus of opinion points to introduction from without along the great lines of communication, and chiefly from the east and south, in former times by road, and now more frequently by rail.

The summer months are the most fatal, and the disease has usually subsided, if it has not ceased altogether, shortly after the monsoon has set in.

Several epidemics have begun the Pushkar fair in November, when the water has been unusually low in the lake, but as pilgrims come to this place from all parts of India, it is not difficult to conclude that the epidemics have originated with them. In years of great heat and scanty rainfall the village tanks become low, and, owing to the fact that cattle and the inhabitants all bathe in them, the water becomes foul, and too often is little better than sewage, which the people drink and use for cooking.



In such cases virulent diarrhœa is not uncommon, and it is easy to understand that cholera germs, if introduced, would flourish and give rise to serious outbreaks. The habits of pilgrims, and travellers generally are such as to facilitate the importation of such germs.

#### SMALL-POX.

This is a disease of the winter and early summer months and used to spread rapidly in the unprotected communities of Rajputana. Of late years vaccination has had great influence in lessening the virulence and fatality of these outbreaks, but it will be impossible to stamp them out until the use of the prophylactic becomes more general, and, in such a condition of the population as exists in Rajputana, is made compulsory. Inoculation was at one time widely practised, but is now disappearing with the spread of vaccination. Every Superintendent of Dispensaries is also head of the Vaccination Department in his State, and has under him one or more native superintendents or Inspectors, and a number of vaccinators who are specially trained for this work. The Rev. A. P. Jameson remarks that the Bhils have inoculated from time immemorial under the name of Kanai. The operation is done with a needle and a grain of dust dipped into the pock of a small-pox case.

The operation of vaccination until recently was only carried on in the cold weather and lymph was obtained from the hills. It has now been found that a supply of the latter can be kept up with care throughout the summer and rainy seasons. Surgeon-Major Faulkner, of Alwar, showed how a very large supply of lymph could be obtained at the beginning or the season by vaccinating calves with human lymph. The general use of calf lymph is not ordered at present in Rajputana on account of the difficulty in procuring calves for the purpose owing to local prejudice.

#### ENTERIC FEVER.

There is reason to believe that this disease is much more prevalent amongst natives of India than was suspected. Some suppose that the majority of the children have had it, and that a considerable degree of immunity has been acquired.

#### TYPHUS FEVER.

Typhus fever has occurred in the jails, and particularly in Ajmer and Jaipur, and has been reported to have prevailed during seasons of famine, but there has been much difficulty in differentiating it from the severer forms of malarial fevers.

A fever, coupled with jaundice, which broke out some years ago in the Jaipur Jail, was written of as yellow fever, but was probably typhus or typho-malarial remittent fever. The clinical thermometer was not then used in diagnosis.

#### MAHAMARI OR PLAGUE.

This disease was observed at Pali in Marwar in 1836, but whether it was identical or not with the plague was for a long time held to be doubtful. It appears to have been most decidedly a filth disease, and it was accompanied, as in the plague, by great

mortality amongst rats. Its identity in the light of recent experience seems now to be certain. The following is perhaps the best account of that epidemic.

Surgeon-Captain Grant, Special Officer for Plague duty in Sirohi in 1897-98, has kindly made the remarks printed as footnotes on the following copy of a letter from Assistant-Surgeon H. Maclean, Merwara Local Battalion, to William Panton, Esq., Superintending Surgeon, Nimach, dated Beawar, 16th October 1896, in which he (Captain Grant) gives his observations of the last outbreak in 1897 :—

“I have the honour to submit, for your information, the result of my observations during a hurried visit to Soojit and Pali, on the disease for some time past and still prevailing in this and certain other towns and villages of Marwar.

“2. In my former communications to you on this subject I mentioned, on the authority of native reports, which I have since found by personal investigation on the spot to have been in the main correct, that the disease in question first appeared among the Chippahs or cloth-printers of Pali, and that it subsequently attacked all other classes and castes of the inhabitants.\*

“In the course of five or six weeks from its first appearance, the disease having committed great ravages and the daily mortality being still on the increase, all ranks of the towns-people became so much alarmed, that they began in considerable numbers to abandon alike their homes, occupations and property, and to seek refuge in Jodhpur, Soojit, Khairwah, and other towns and villages within a circle of from twenty to thirty miles around Pali.†

“The wealthier members of the community were the first to emigrate, others soon followed their example, and, to such an extent, that only the very poorest remained in the outskirts of this once rich and thriving town. I must make an exception to the above general statement in the case of the Chippahs, more than a hundred families of whom have never quitted the place.

“3. Although previously aware that the greater number of the inhabitants had left the town, I had not imagined the desertion to have been so complete as I found it really to be on my first visit, on the evening of the 11th instant. Almost all the long narrow streets and alleys were tenantless, every shop shut, and, in so far as I could form an opinion after visiting every quarter of the town on the 11th and 12th, I was disposed to think that not more than a thousand individuals, and those chiefly of the lowest classes (exclusive of a small body of the sepoy of the Raj located in the southern suburbs), remained, out of a population of probably fifteen thousand.

“4. The refugees are now beginning to return to their homes. A considerable number arrived on the 12th and on the 13th. I met on the road, between Pali and Soojit, no less than 83 carts, each containing four or five persons, proceeding from the latter to the former place. They were induced to return to Pali, partly to escape from the increasing sickness

\* First appeared in 1897 amongst the Oswal Section of Baniyahs, who brought it from Poona.

† No general exodus occurred in 1897 on account of the villagers being sent into camp at the beginning of the epidemic.

in Soojit, and because they had been led to believe that the mortality in the former town had nearly ceased, and partly no doubt by anxiety to recover the property which they had left behind them at the period of their flight, and which has been exposed for some time past to the nightly depredations of the Minahs, no effectual means having been adopted by the Jodhpur authorities to protect the possessions of the absent citizens.

"I much fear that their return to Pali will be followed by a repetition of the same melancholy occurrences by which they were driven from it.

"The mortality there for some weeks past has certainly not exceeded six, eight, ten or twelve deaths per diem, but it appeared to me that this reduction in the number of casualties had not arisen from any abatement in the virulence of the malady, but almost solely from the paucity of victims within its reach.\*

"The actual mortality is fully as great in proportion to the present population as that of seven weeks ago.

"5. Of the thousands of persons who quitted Pali five or six weeks ago, some were at the time labouring under disease, others fell sick on the road or immediately after they had reached their destined places of refuge.

"For a short period after their arrival in the various towns, in which they had taken up their temporary abodes, the sickness which they had brought in their train adhered to the refugees, without attacking the inhabitants of those towns.

"But this state of things did not long continue.

"The classes with which the refugees had the most intimate communication (Baniahs for instance) speedily began to feel the effects of the Pali scourge, and now there is not a town or village to which the refugees resorted in any considerable numbers, which is not become a fresh focus of contagion, and in which the original malady does not rage with fearful vigour.\*

"6. At one of the most considerable of these towns, *viz.*, Soojit, I remained about thirty-six hours, part of which time I spent in the principal bazar, examining the sick at their doors and in their houses. It was impossible for me to keep any account of the numbers of the sick whom I saw, or any detail of the symptoms of their disease in individual cases.

"I took the earliest opportunity, however, of recording the most prominent and constant symptoms of the malady, as it came under my notice, and shall now proceed to state them just as I find them noted in my memoranda written immediately after having seen some scores of patients of every age, and of both sexes.

"7. The attack is generally sudden; without previous feeling of indisposition, the patient is seized with rigor, usually slight headache, pains of the loins, nausea, and the skin soon

\* In 1897 the Chumars were the first to take the disease from the Baniahs, but in three weeks, no caste was immune.

becomes hot and dry, and the pulse frequent, generally soft and easily compressible, seldom full and bounding, and rarely or never hard.\*

"I counted a great many pulses; they were all frequent, often 130, 140, 150. This might in some measure be attributable to the exertion necessarily made by the patients while being carried to the doors of their houses from the interior.†

"In many cases, however, where the patient was not moved at all, I found the pulse equally frequent, tongue usually covered with a white or light-brown fur. Sometimes it was nearly clean, chiefly where the disease was of recent date. Vomiting did not appear to be common at any period of the disease.‡

"I saw, however, a few cases in which there was much irritability of the stomach manifested by frequent and distressing retching.

"Bowels generally bound in the early stages of the disease, abdomen rather tumid and hard, and almost always free from pain on pressure, considerable thirst, eyes commonly heavy and hazy, often blood-shot, countenance in all the severer cases expressive of much anxiety and suffering. Respiration generally easy, excepting in patients having inflammation of the lungs as the prominent feature of their malady.§

"7. Buboec appear in the groins, armpits and neck, usually on the left side,|| sometimes almost simultaneously with the fever, but more commonly in the course of the first or second day,¶ rarely so late as the third or fourth.

"They are at first of small size, moveable, and always acutely painful to the touch.\*\*

"In some few cases they increase rapidly in bulk, suppurate and discharge pus alone, or mixed with shreds of dead cellular membrane.††

"In by far the greater number of instances, however, they do not become larger than a walnut, and show no disposition to suppurate.‡‡

"The groins are the situations in which the buboes appear the most frequently; sometimes there is one in each groin, sometimes in one groin and one axilla, sometimes in one or both axillæ and neck, in one or both groins and neck, or in the neck alone. Suppuration, and even rapid increase of size without suppuration, have been remarked by the Pali people to be favourable symptoms. In persons who recover from the disease the buboes most frequently disappear gradually of their own accord. I saw one man, however, in whom a bubo in the left groin had attained a great size, and was likely to

\* At the onset there was in 75 per cent. of the cases a rigor which was usually slight. A "running" pulse was one of the earliest symptoms often before fever was fully developed.

† They are the usual symptoms at the onset.

‡ I observed this only in one case, nor did I note irritability of the stomach.

§ These symptoms were noticed in 1897, and in a few cases the abdomen was very tender on pressure, presumably because the mesenteric glands were involved.

|| Left side a little more common; occurred in the groins in about 15 per cent. of the cases.

¶ The usual date.

\*\* Not always moveable, sometimes a large immoveable mass shows in an hour. I would rather say tender on firm pressure, especially in the small and moveable.

†† None have suppurated.

‡‡ My experience is that the greater number become larger and more or less immoveable.

prove very troublesome. It extended from the pubis to near the anterior superior spinous process of the ilium, and was very hard and painful. In this patient the fever had ceased four days before I saw him.\*

" 8. In this disease a remission of the febrile symptoms, more or less marked, takes place towards morning, the remission being of larger or shorter duration, according to the mildness or severity of the malady in each individual case.

" In the worst cases there is no perceptible remission. In some the disease was so mild that the patients walked without assistance from their houses to the place where I was standing, had their buboes, pulses, etc., examined, swallowed their medicine, and walked home again.†

" In others, again, syncope followed any attempt to raise them from their *charpoy*s.‡

" The head is but rarely affected in the early stages of the disease. Most of the persons I saw, answered questions readily and distinctly.§

" In fatal cases the patients become comatose some hours before death.||

" 9. In a small proportion of cases, inflammation of the lungs comes on on the first or second day of the disease. The patient complains of acute pain of one or other side, or behind the sternum, great difficulty of breathing, short dry cough, usually on the second or third day a small quantity (rarely more than half an ounce) of florid blood, in small coagula, is expectorated.¶

" In such cases buboes are not commonly observed, though they do occasionally co-exist with the inflammation of the lungs.\*\*

" The mortality has been so great among those in whom the lungs were affected, that a person now, on seeing blood in his sputum, gives himself up for lost. I saw, however, many persons who had recovered completely. The first individual I had an opportunity of seeing in whom the lungs were affected was a young Brahman woman. I found her doubled up on a *charpoy*, her body hot and dry, pulse 140, small and hurried, tongue covered with a light yellow fur, mouth clammy, dyspnœa, unable or unwilling to answer questions, but points to the centre of the sternum when asked in what part she feels pain. Bowels bound, eyes heavy and blood-shot, occasional short cough, had expectorated about a two pice weight of blood the day before, no buboes; third day of the disease died in the course of a few hours.

\* In Sirohi in one case only were two buboes found (in both axillæ), but they are more frequent in other parts on the country. The largest buboes in Sirohi extended from Poupart's ligament to the lower end of Hunter's canal. There was no remission of fever in the case.

† This was the case in Sirohi. Some persons are able to walk about all through the illness, but in one such case a bad turn took place suddenly with death in 24 hours.

‡ Also seen.

§ Usually the case.

|| Coma generally preceded by delirium.

¶ There was no hæmoptysis in the Sirohi cases.

\*\* No buboes co-existed.

" 10. In the greater number of fatal cases death takes place on the third day, often on the second, and rarely later than the fourth; when the patient holds out beyond the fourth day he generally recovers. This remark does not apply to all cases in which the lungs are affected.\*

" In some of them death does not take place till the fifth, sixth or seventh day.†

" But few, however, recover. I saw one man who had been ill seven days; he was supported in a sitting posture, respiration hurried, mouth wide open, eyes rolling wildly, unable to speak, apparently in great agony.‡

" Effusion had probably taken place in the chest. Died shortly after I left him.

" 11. I had no means of ascertaining very exactly the rate of mortality from the Pali disease. It is certainly less considerable than I had been led to believe from the reports made to me by natives previously to my visit. Still it is fearfully great, probably not less than two-thirds of those attacked.‡

" The total number of persons who have fallen victims to it in Pali cannot yet be correctly known.

" The *hakim*,<sup>1</sup> with whom I had several conversations on the subject, estimated them at five or six thousand. This is probably beyond the truth, but I cannot doubt that about four thousand have actually died. The Chippahs originally amounted to between four and five hundred houses or families, probably two thousand individuals of both sexes and all ages. Of this number six hundred and fifty-five, or about one-third, have died.

" Supposing the population of Pali to have been nearly fifteen thousand, and that it suffered in like proportion with the Chippahs, the result would be a mortality to the extent of more than the number I have stated above.

" 12. The same scenes which occurred in Pali six weeks ago are now taking place in Soojit, Khairwah, Chandawal, etc.

" The wealthier inhabitants are departing, and on those whose means or whose apathy does not permit them to fly, the Pali scourge is doing its work.

" Soojit is a town of about six thousand inhabitants. The Kotwal went to Jodhpur some time ago, after having lost his wife by the prevailing malady.

" The daily number of deaths was repeatedly stated to me by various respectable individuals of the town to be from twenty to forty. That the number was considerable I know from having seen the smoke from many funeral piles constantly ascending during the whole time I remained at the place.

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<sup>1</sup> Governor.  
\* Death occurred in Sirohi about the end of the second day in the greater number of cases. Out of 85 cases 60 occurred within 48 hours, 6 on 3rd day, 5 on 4th day, 7 on 5th day, 2 on 6th day, 1 each on 7th, 8th, 9th, 12th and 14th.

† In fatal cases the chest appeared to be "water-logged," a gurgling sound with the breath was heard some feet away.

‡ It was 80·95 per cent. in Sirohi.

"13. With regard to the medical treatment pursued by the natives of Pali and Soojit in this disease, I have but little to say.

"In both places I found it had not been unusual to apply leeches and a composition of onions, turmeric, etc., to the buboes.\*

"On my recommending venesection in those cases in which the lungs were affected, I was told that the Chippahs had practised it frequently, but without advantage. Those who were bled, I was assured, had died as soon and in as great numbers as those for whom nothing was done. Purgatives seem to have been but seldom used. I was unable to meet with any *baid* or *hakim*.<sup>1</sup> Persons of this description had fled from Pali with the crowd, declaring their ignorance of the new disease and of the remedies by which it might be cured.†

"14. From a comparison of the symptoms of the Pali malady, and consideration of the circumstances connected with its origin and progress, I cannot help arriving at the conclusion that it is no other than the plague, though happily not in its worst form.‡

"15. It is certainly a disease hitherto unknown in this country. It is also almost unprecedentedly fatal. That it is contagious appears to me to be proved by the whole history of its progress, since it first appeared among the Chippahs of Pali three months ago. Had it confined its ravages to Pali alone, or had it been common or even unknown in the other towns in which it has since appeared before the Pali people took refuge in them, it might have been supposed to be a malignant fever, depending on local causes for its origin and continued existence. But when we see it starting up in every town to which these persons fled, some of them actually labouring under the disease, some but just recovered, and some with the germ of the malady still inert in their veins, the conviction that it is contagious is irresistible.

"It is evident, however, that the atmosphere of contagion is extremely confined. I believe a person might with impunity enter, and may live, in those towns in which many hundreds of the inhabitants are now labouring under the disease, provided he were careful to avoid personal contact with the sick and visiting them in the small, close chambers in which they are lodged. I myself spent hours in the middle of the Bazar, surrounded by the sick, entered some of their houses, touched and examined their bodies as freely as if they have been affected with any common disease, and now after an interval of five or six days during which I have undergone considerable bodily fatigue, feel perfectly secure from any attack.§

<sup>1</sup> Mohamadan physician.

\* The people applied to the buboes a composition of boiled leaves and sometimes cow-dung.

† No treatment seemed to be of any use, except stimulation in the less acute cases.

‡ The symptoms excepting hæmoptysis were very similar, the great muscular weakness and prostration in the most violent cases afforded valuable evidence for prognosis.

§ I fully concur in this statement. Only three or four attacks in camp among attendants of sick, and three occurred within four days after segregation. The sick attendants had been in all cases exposed equally to infection with the sick before they were removed into camp, and, in my own mind, I feel sure the disease was in a state of incubation. The people all refused medicine and the sick attendants hardly ever made use of the disinfectants which were provided.

" 16. It is not a little remarkable, and still further tends to establish the contagious nature of the disease, that in the smaller villages in the immediate neighbourhood of Soojit, no case of the *Gunt Ke Mandugee*,\* as it is called, had occurred so far as I could learn on minute inquiry.

" 17. In regard to the origin of this disease, I have nothing to offer beyond conjecture. Was it generated in Pali by the noxious exhalations from the low, swampy edges of the *jheel* or tank immediately to the eastwards of the town, or by the want of ventilation and cleanliness in its narrow irregular Bazars and alleys, or was the pestilential contagion brought in the bales of cloth imported into Pali from Bhaonuggur, Surat, etc., and of which the Chippahs (among whom the complaint first began) are the principal purchasers ?†

" Most of the cloth so imported is English, but it is possible that some of the coarser kinds of it, or perhaps silk, may be the produce of plague countries, and may have been brought direct to Pali from the coast without being opened, the sales having been effected by *musters*.

" The Chippahs call *all* the cloth coming from the coast *foreign*, and know nothing of the particular countries from whence the different kinds are brought.

" The absence from Pali of the *Seths*<sup>1</sup> who import the cloth for the use of the Chippahs prevented me from acquiring correct information regarding the various countries from which they derive it.

" 18. In concluding this report I beg to solicit your indulgence in regard to its many imperfections, of which I am fully sensible.

" Had circumstances permitted me a longer stay at Pali and Soojit, I might have been able, by watching the progress of the disease in individual cases from its commencement to its termination, to describe its symptoms more minutely and accurately than I have now done.

" I trust, however, that sufficient information has been procured to enable you to form a correct opinion of the nature of the malady.

" I do not apprehend that there is any reason to fear its introduction into the British territories.

" In all probability, the cold of the ensuing months will completely, and I hope finally, extinguish it.

" 19. In the mean time, were even the necessity urgent, which it is not, I much doubt the possibility of imposing any effectual restrictions on the intercourse between the infected towns of Marwar, and the Honourable Company's possessions."

<sup>1</sup> Babiahs or bankers, brokers and dealers.

\* *Gunt Ki Mandagi*.

† It is known that the disease in 1897 was brought from Puna to the village of Teuri in Sirchi, and that a man died the day after his arrival there.



Assistant-Surgeon Weir on the 11th January notes as follows:—

"In compliance with your instructions forwarded to me from Bhilwara, I beg to state that on my route through this part of the country, *via* Gungapore, I visited the village of Lakola for the purpose of making inquiry into the nature of the sickness said to prevail there. The village of Lakola is about two *coss* from Gungapore and has a large *tulao* or tank, immediately adjoining. The inhabitants are chiefly Jauts and Banniahs, and, previous to the late mortality, were stated to amount to between six and seven hundred. The houses are of the meanest description, and a great proportion of them in a ruinous condition. I was informed that upwards of 200 persons had died in the village within the period of three months, but that the disease which had committed these ravages had disappeared fifteen days before the time of my visit. There was evidence of the truth of this statement in the deserted appearance of the place. On traversing along the dirty streets, I passed very few dwellings the doors of which were not secured and plastered with clay, shewing that the occupiers were dead or had fled. I was told that the number who had abandoned their homes amounted to about 250, and that they had not returned. The population was reduced to the lowest ebb, and certainly the residents who remained did not amount to above eighty or ninety, if so many. The disease, which had been so active, corresponded, so far as I could learn, in every essential particular with that described by Doctor Maclean in his report on the Pali sickness. Fever accompanied by head-ache, a great degree of prostration of strength, and, generally on the third day, swellings on the neck or in the axilla or groin. A few cases had been observed unmarked by any swellings whatever, but among these an equal fatality had occurred. In the greater number of instances death took place on the third day subsequent to the attack, sometimes on the fourth, and the few who survived this period for the most part recovered. The number of these survivors was calculated to be about thirty. I saw only one, and that an unfortunate woman who had lost her husband and children, six in all.

"In regard to the treatment, the villagers had nothing to oppose against a disease so new and formidable, and on its invasion all hope seems to have been abandoned. There had been an importation of *golies*, or pills, of some description from Oodeypore, sent, I believe, by the Rajah, but their inefficacy being seen, their use was speedily given up. The only criterion that could be considered favourable, and to warrant a hope of recovery, was the circumstance of the swellings proceeding to the suppurative stage, which they did in most of the fortunate instances.

"Two neighbouring villages were pointed out to me by the Thannadar or headman of Lakola as being still the seat of the disease in question—Korah and Sukhmuncawass. I proceeded to Korah the same evening, and examined the sick of the village or hamlet, two in number; one of them was a rather old man suffering from slight fever and a good deal debilitated. He had been ill seven or eight days and was evidently recovering.

"A small hard swelling of the right groin was the only suspicious symptom I could discover, and which he said had appeared during the course of the febrile attack; he informed me that three persons had lately died in the house in which he lived, and that their illness had been similar to his except in regard to the swellings, which were larger. The

other sick person was a young man ; he suffered from acute fever with furred tongue, but his case was distinguished by no other unusual symptoms. From these equivocal instances it was impossible to conclude that the Lakola and Pali disease had been imported into this place, although one might be led to suppose that it had, if confidence is due to what the inhabitants related.

" My visit to Sukhmuneawass was made on the following morning. It is situated about a *coss* to the eastward of Lakola, and is a small and wretched place with a population of about a hundred. I was told that fourteen of the inhabitants had died within the last two months, and that the disease which carried them off was exactly similar to that which had so lately prevailed at Lakola. A good many people were said still to labour under this disease, and these I accordingly examined, being one male and five females.

" The man had been ill several days ; he had fever but no distinct swellings in any part of his body, his tongue was moist, and whatever had been his complaint he seemed to be doing well. Among the women, only one of the cases was recent. She was labouring under febrile symptoms, which had commenced three days before ; there did not appear to be any very great prostration of strength, but three or four swellings about the size of a walnut had made their appearance on the left side of the neck, immediately under the ear ; these swellings were hard and painful to the touch and had not been observed on the day before.

" It was clear that this was an example of the disease, but an instance in which it was characterised by unusual mildness. In the other cases the more active symptoms had abated, but in two of them there remained evidence to show that the disease had occurred in the usual way : one of the women had a swelling in the axilla which had burst and was discharging pus. In the other instance, there was a considerable swelling of the right groin, but which I was not permitted to examine particularly ; another woman had fever, with bloody expectoration, but no swellings ; she was old, as well as the others alluded to, and her appearance, as well as theirs, indicated a great degree of debility. My conclusion from these cases and the report of the inhabitants was that the Lakola disease had visited this place, but that its virulence and activity had in a great degree abated. This abatement we might expect to occur in the natural course of things ; the state of the weather would, no doubt, contribute to it, as well as the alarm of the inhabitants, causing them to avoid contact with the sick.

" In regard to restrictive measures, they seem to be hardly required in a part of the country where the alarm of all is so great. It was with the greatest difficulty that I could procure a guide to shew me the road from Gungapore to Lakola, and I succeeded only by agreeing to the necessary stipulation, which was that he should not be obliged to enter the latter village. I was surrounded *en masse* by the inhabitants of one small village near to Sukhmuneawass. I found on inquiry that no sickness had occurred amongst them ; they had flocked out merely to learn what measures they should have recourse to, in case sickness occur, and such as suggested themselves to me at the moment I endeavoured to explain."

On March 7th, 1837, Assistant-Surgeon Irvine gave the following account:—

"I have the honor to inform you that, in obedience to your instructions, I proceeded on the afternoon of the 21st instant to the town of Jalia to examine into the accuracy of the native rumour of the plague or *murree* having been prevalent among the inhabitants for some days previously; I then examined about fifty cases of disease, which in symptoms precisely resembled the description of distemper that occasioned so great a mortality at Pali on its first breaking out, and, subsequently spreading throughout Marwar and Mewar, has carried off numbers of the inhabitants.

"2. I have since the 2nd instant been daily occupied, for a period of from three to four hours, in visiting the sick in Jalia, and on each occasion have generally seen the whole of the infected. I have studied a number of cases from the first attack to the fatal termination in three days; and many patients, whose disorder had existed for three or four days previously to my arrival, I have attended subsequently throughout to the period of recovery or death. From this experience, I have no hesitation in defining the present disease as the true plague, that is, a very malignant fever of a putrid and contagious nature, characterised chiefly by buboes, and its contagion appearing of a specific nature, and particularly affecting the nervous and glandular systems. The plague of Jalia is distinguishable into three varieties, similar to the plagues of Malta and Egypt. In the mildest form the fever is intermittent, in the severer remittent, and in the severest continued, accompanied by typhomania towards the termination in death.

"3. These cannot, however, be considered distinct species, as the milder often verges towards or is commuted into the more severe, the symptoms changing accordingly. I believe the difference to depend on the patient's greater or less susceptibility to the influence of the contagion when at first attacked. In the worst cases, the buboes appear consentaneously with the primary accession of the disorder, and are hard and indolent; in the milder form, buboes are often not perceived, but when the milder is about to change into the more severe, then the glandular affection is sure to accompany the transition. The disease is ushered in by rigors, which are more severe in the worst form; a succeeding burning fever with muttering delirium ensues; the conjunctiva of the eyes is injected or blood-shot, of a lake colour, the eye is glassy and like that of a drunken man; the state of the tongue varies, but it is always foul, white towards the edges and brownish posteriorly, but in the worst cases the tongue is covered by a tough thick coating of brownish-white sordes, no red point appears, and it is perfectly dry. The pulse varies, and is full and strong, and about 110 at the commencement; towards the termination it becomes very rapid, thready, and about 140, till at last the fluttering and rapid pulsations are not easily counted; dry skin, most excruciating head-ache, and great thirst accompany the disorder; absolute prostration of strength, inability to raise even a finger, always accompanies the worst forms, and in one case hæmorrhage from the lungs occurred some hours before dissolution.

"4. The plague at Jalia differs from that of Egypt in appearing to select women and children as its objects, in preference to robust men.

" 5. The buboes appear irregularly among the inguinal glands, or those of the axilla, the sub-maxillary, the lymphatics of the thigh, or in the occipital region behind the head. Where the buboes came to a head, the suppuration proved critical, and on lancing the tumour the patient recovered.

" 6. To instance the varieties of the disorder and the vacillation from milder to severe, I will shortly glance at two cases. Shabaz Khan, *chuprasi*, a stout man, about 28 years old, was attacked by rigors on the morning of the 2nd instant; these were succeeded by violent fever and delirium. When I saw him in the evening his skin was burning hot and dry, his pulse 100 and full, his tongue very foul, his eyes blood-shot and glassy; he was muttering deliriously, his strength was completely gone, a large hard bubo was observed among the lymphatics of the left thigh; he had been spontaneously purged many times, each time passing much bile. I had him lifted, and bled him, in the sitting posture, to about fourteen ounces; he became sensible, and sweated freely. I gave him five grains of calomel, and four grains of opium (he was an *ufhecme*),<sup>1</sup> and ordered him to drink freely of *imlee sherbet*.<sup>2</sup> On the morning of the 3rd he was almost free of fever and sitting up on his *charpoy*, his tongue was cleaner at the edges; he only complained of the bubo; the bubo was leeches and a hot poultice of pounded *neem* leaves and *ajwain* seed applied, and, with the view of restoring the secretions to a healthy state, calomel with opium was given. He continued doing well all the 3rd. On the 4th at noon he had more fever; he looked wild and drunken, his tongue was covered with sordes; he soon became delirious, muttering and rolling about; he fell and cut himself severely over the face, but the flow of blood from the wound did him no good; he died in the evening. This is a case of the worst form.

" A respectable Baniah's son was attacked by quotidian intermittent fever on the 1st of the month. The fever persevered in this form up to the 4th, when it ceased to intermit; the headache became excruciating, and complete prostration of strength came on; in the evening I observed a large bubo in the left groin; his tongue became completely furred and dry; he died on the night of the 5th March. This is a case of transition from the milder to the severe variety.

" 7. I would, with all deference, recommend the following treatment. On the first attack, the more robust men should be bled from the arm in the sitting posture to a moderate extent, till perspiration appears on the forehead and the head-ache is diminished; an emetic should then be given, after which, if the patient has not been spontaneously purged, a dose of calomel, followed some hours after by a moderate laxative, should be administered. The weaker men, women, and children should have leeches applied to the temples, in proportion to the ages and severities of head-aches, after which similar treatment of an emetic and mild purge. The patients should be separated from the healthy, their bodies sponged repeatedly with cold water, and the head kept cool and moist; calomel and antimonials, with camphor and opium, should then be *exhibited* in regulated divided doses, at intervals, to act on the system and restore the secretions; the buboes should have stimulating poultices applied; acidulated drinks and rice *conjee* may be given *ad libitum*. So soon as a considerable remission or complete intermission occurs, cinchona bark, quinine, mineral

<sup>1</sup> *Afmi*—opium-eater.

<sup>2</sup> Drink of tamarind.

acids, wine and nutritious diet should be freely given to restore the strength and prevent a relapse. But as these remedies are not procurable for the use of the infected villages (the villages are without any sufficient supply of the most common native remedies), a tolerable substitute will be found in the administration to the convalescent of pills of *katharunja* seed made up with camphor and carminatives, and given with a decoction of *chiretta*, at the same time the most nutritious diet being observed.

"8. The healthy portion of the inhabitants of Jalia were entreated to leave their houses for a time, and encamp round the walls, until the plague should entirely subside; the sick alone to remain, to whom I offered to attend; all filth and dirt was directed to be collected and burnt; all the apparel was ordered to be washed; and the houses to be new *leaped*<sup>1</sup> with cow-dung, in the absence of white-wash. The apathy of the natives has occasioned these instructions to be altogether evaded, or only ineffectually performed. The dirt and filth of the town still remain, and the inhabitants' clothes are still unwashed; the old dung<sup>2</sup> hills outside of the town were set fire to; and on the 5th about 200 persons, frightened at the mortality, left the town to encamp near the river, but took their sick along with them who will be likely still to spread the disease among the healthy. Up to the 7th March, more than 1,000 have left the town, and have obstinately gone into neighbouring villages, where I fear the contagion will spread, and in some of which it has already appeared. The healthy at Jalia now keep aloof from the sick; so the disease is mostly confined to houses before infected; but, at any time, when fear is removed, subsequent communication may restore the extension. On this date, 7th March, there are very few new cases: many have died and many have recovered or are convalescing.

"9. The houses of those ill of the plague are many of them half full of cotton lying loose, the sick are covered with quilts, the doors are shut, and the relations sit close round. All the clothes of the dead, though recommended to be, have not been, burnt. These will spread the contagion, as also may the cotton when sent and sold elsewhere.

"10. The population of Jalia was rated between four and five thousand. Of those sick of the plague treated by me, five have quite recovered, one of them by only lancing the bubo; about twenty-five others are convalescent and may recover completely; a good many of these have gone out of the town. On the 6th March (yesterday) about thirty altogether were badly infected in the town. The disease is extremely fatal. On the evening of the 3rd, I counted fifty-nine *chearas* of recently-burned bodies (and some few had also been buried); eight died from the morning of the 3rd to the morning of the 4th March; seven died from the morning of the 4th to the morning of the 5th, and from the morning of the 5th to the morning of the 6th fifteen died in the town and two out of it; from the morning of the 6th to the morning of the 7th seven died: making a total of ninety-eight deaths in about eleven days. Two *tailies* or oilmen died of the plague. The daily increase of cases has been hitherto about ten. To-day, the 7th, they are fewer.

"11. I may now proceed to trace the course of the contagion. About eighteen days since, a Burrat<sup>3</sup> left Budnawr (where the plague has been raging for more than a month)

<sup>1</sup> Plastered,

<sup>2</sup> Wedding possession.

for Jalia. On arriving at Jalia the party put up at a Mahajan's<sup>1</sup> house ; in the vicinity of that house the plague appeared at a Baniah's a day or two subsequently ; some of the Burrat party became sick on arrival at Jalia, and left it and went to Seonagar, on the 26th of February, where they stayed two days ; on the 28th they left Seonagar and went to Untalee, where two died of the plague on the 4th March : on the 3rd March a man died of the plague at Seonagar. The course of the propagation of the contagion to Jalia seems clear enough.

" 12. The disease is eminently contagious at Jalia. I will instance a few cases. In a Brahman's family six members have died within seven days ; all lived and slept together. Another Brahman woman was attacked, but she recovered ; her son was taken ill during her recovery ; then her grand-daughter : both the latter are dangerously ill (or dead) ; they all slept close together in the same room. A Baniah constantly nursed his son (twelve years old) in his arms, till the boy died ; the father was then attacked, and is likely to die ; and many similar cases.

" 13. In case of the plague attacking a village, I am of opinion that, in order to arrest the progress of the scourge, all the uninfected should be caused to leave their houses and encamp outside the walls, they being also prohibited from holding intercourse of any kind with other villages, and *vice versa* : the sick should remain in the villages, and be properly attended to by a *baid* or *hakim* ; as soon as any sick recovered, they should be thoroughly cleansed in person and garments, and sent out of the village also. The dead should be immediately burnt, with all bedding and clothes. The sick of the village should be kept in the cool air, and their bodies occasionally laved or sponged with cold water ; a *hakim* should be sent, provided with a lancet, leeches, calomel, opium, camphor, *jumalgota* seeds, *kaikaranja* seeds and *chiretta* ; he might pursue the plan above pointed out by me, as to medicinal and dietetic regimen, as well as the other precautions advised, with (I believe) favourable results ; and the method is economical and easily practicable.

" 14. To prevent the plague spreading to Ajmer or elsewhere, parties of troops or police had better be stationed on all the roads that might give access from infected places, with which, as far as possible, an absolute interdiction of intercourse should be observed. The travellers, and merchants, and merchandise arrested at the different posts should be inspected by a responsible person ; those who are perfectly healthy should be caused to ablutionise freely, and air and wash every part of their clothing ; they then might be permitted to proceed with a certificate. Raw wool and cotton from infected places should be turned back. Piece-goods and other articles should be opened and well aired, and if possible exposed to a temperature of 140 degrees, after which the goods might be passed. Letters may be disinfected by exposure to the vapour of burning sulphur and nitre, without any difficulty.

" 15. The great danger of the plague spreading into our populous provinces is obvious.

<sup>1</sup> Baniah.

"16. I believe that the hot winds will greatly abate, if not annihilate, the contagion of the plague; but it may remain in the insidious shape of common fever, as it has been known to do in Egypt, and again break out into its usual virulent form, on the occurrence of a temperature more conducive to its production.

"17. At present, the early interference of the strong arm of the Government may prevent entirely any subsequent danger to be apprehended from the continued presence of pestilence."

The following minute was obtained from the Office of the Commissioner of Ajmer:—

*"Minute by the Honourable the Lieutenant-Governor of the North-Western Provinces, in the Political Department, under date the 27th March 1837.*

"There being no doubt that the plague is raging in Rajputana, it becomes a duty of immense importance to consider how this horrible pestilence can be arrested and suppressed.

"2. Different opinions have been entertained as to the manner in which the plague is propagated; some authorities maintaining that the infection is conveyed by the air; others that it can only be imparted by actual contact with infected persons or things.

"3. The latter seems, with good reason, to be the prevailing belief, and it is that which offers the only hope of checking or extinguishing the disease; for, if this be true, the pest may be stopped where contact can be prevented: whereas there can be no certain method of combating infection which is floating in the atmosphere.

"4. It is, however, to be noticed that, although the plague in itself be only contagious and not to be produced otherwise than by contact, it might possibly by neglect lead to an infectious epidemic; that is, the effluvia from bodies and matter contaminated with the contagion might infect the atmosphere and produce a disease different from the plague, but more difficult to be prevented, and therefore, perhaps, more destructive; or, in other words, more likely to be fatal to greater numbers. It is also an opinion entertained by some, and probably with justice, although not universally received, that too close an approximation with infected persons and goods may produce the infection without actual contact, that is, infection may be conveyed by effluvia from such sources.

"5. The plague, however, is known to be a contagious disorder, which has been successfully resisted, and either excluded or annihilated, by measures directed to the prevention of contact between healthy persons and things on the one hand, and infected or suspected persons and things on the other.

"6. The same measures are now therefore applicable alike to the British territories and to those of Native States, and may be adopted with good effect in either.

"7. The first point to be considered is, how the pest can be altogether excluded from countries and places to which it has not yet extended.

"8. For this purpose an impassable cordon of posts ought to be established on the frontier. All parties coming from an infected or suspected quarter to be stopped, and made to undergo quarantine, until it be manifest that they and their effects are free from the contagion.

"9. Each party to be kept separate in its own camp, and no intercourse to be permitted during the period of quarantine either between the several parties or between any party and any of the frontier towns or villages. Food to be sent to the several parties and delivered without contact, and the money given in payment ought to be received in a cup of vinegar without being previously handled by the sellers. Each party to be kept isolated until its quarantine shall have expired without any appearance or symptom of the disease, when it may be allowed to proceed on its journey, without, however, any communication with other parties similarly detained.

"10. It is supposed that twenty days would be a sufficient period for quarantine, and that if any spark of the contagion were lurking, it would blaze out within that period. This, however, is a point which medical authorities must decide. In Europe the time fixed for merchandise seems to be forty days, the period implied by the designation given to this detention.

"11. The plague is frequently introduced into places before free from it by infected goods. It is, therefore, necessary to put goods as well as persons into quarantine on the frontier, and during the period of quarantine, all goods, whether merchandise or effects of the parties, in use or not in ordinary use, ought to be opened and well aired and exposed to the sun daily, and steeped in water if the articles be not such as would suffer from that operation. All this ought to be performed by the parties themselves. The exposure of clothes, etc., to the night air is in some countries considered to be a preventive.

"12. It is to be remembered, as a stimulus to the most minute precautions, that the pest may be introduced into a country by a bit of rag or the smallest particle of any susceptible substance.

"13. In the event of the plague breaking out in any of the individuals under quarantine, such individuals are to be removed from the party to which they belong, and kept separately in a hospital or lazaretto with all possible care and attention and medical treatment until they die or recover. Their party must be kept separately as before, but put also under medical treatment until a sufficient time shall have elapsed to show that no symptom of plague remains among them. In such cases the clothes, bedding, etc., of the infected persons ought to be burned, and the ashes carefully buried; for even the ashes of infected articles have been known to propagate the disease; and all the susceptible effects of the parties to which the infected persons belonged ought either to be destroyed in the same way or removed to a dépôt to undergo purification; which has been found to be effectual against any renewal of infection from such goods, after the proper process has been gone through, of which ventilation is an essential part.

"14. A doubt may naturally arise as to the means of accomplishing these measures in an open and extensive frontier. The local authorities on the frontier must use their best exertions for the purpose, and no aid that may be procurable, or expenses that may be necessary, will be withheld by the Government.

"15. As these precautions on the frontier may, however, fail, and as the disease has been known to insinuate itself into fresh places very insidiously, we must next consider how it is



to be opposed at the several towns and villages of the interior, after penetrating within the frontier.

"16. When there may be any reason to suppose that the pestilence has crossed the frontier, all parties coming from infected or suspected quarters must undergo quarantine, wherever they may first arrive, in the manner before described, and must not be exempted, although they may have undergone it previously on the frontier; but if the plague be not within the frontier, then the frontier quarantine may be considered sufficient, unless any suspicious circumstances appear.

"17. Every town and village, as far as may be practicable, ought to have six separate places set apart for purposes connected with the prevention or suppression of the pestilence in the event of its baffling all efforts to exclude it from the country :—

"I. A hospital for the infected.

"II. A depôt for the strongly suspected.

"III. Another depôt for the slightly suspected.

"IV. A place of quarantine for new comers.

"V. A depôt for infected or suspected goods where they may be deposited until purified.

"VI. A residence for the expurgators or persons employed in removing the infected to the hospital and cleansing the town and the houses of the infected.

"18. To each of these places separate guards must be assigned of sufficient strength to prevent any intercourse between the persons under their charge and others. The guards must avoid contact with the persons and things under their charge, and too near an approach also, although it is doubtful that the infection can be communicated in the latter mode; and it is satisfactory to know from past experience that with these precautions the guards will be free from danger. But great care must be taken to make them observe these precautions, for they will certainly suffer unless they avoid contact. At military stations the civil authorities may apply for guards from the troops, which if obtained will no doubt become more efficient than any that can be raised for the emergency.

"19. The places set apart for the purposes above mentioned may either be in the town or without, as the infection is not supposed to be conveyed by the mere neighbourhood of the disease; but it is preferable that they should be without the town. Any public buildings, places of religious worship or reverence, may be appropriated for these purposes, or suitable edifices may be hired, or temporary buildings erected, or tents used according to local circumstances and convenience. Either buildings or tents, when no longer required for such purposes, may, with proper precautions, be purified, and will receive no detriment as to their future serviceableness from their temporary appropriation to that use.

"20. The following establishments must be entertained for all infected places :—

"I. A large increase to the police in order to furnish guards for the numerous purposes for which they will be required.

"II. Persons to assist the medical functionaries in the medical treatment of the infected to any extent required and procurable. A part of the duty of these medical assistants will be to search for the infected in order that they may be removed to the hospital.

"III. Servants to attend on the infected in the hospital. These must be kept confined in the hospital, and precluded from any contact with persons without, for, even if they escape the contagion themselves, they might be the means of conveying it to others. Persons of all castes to be entertained as servants in the hospital, if procurable, in order that the infected and their friends may have the satisfaction of knowing that each patient is attended by persons of a suitable caste.

"IV. A body of expurgators, which is the designation used in the Mediterranean Islands. The duties of these people will be to remove the infected to the hospital and convey the dead to their graves or funeral pyres; to remove infected or suspected goods from an infected or suspected house; to purify infected houses; to remove all filth, rags, etc., from the streets; to destroy or remove to the dépôt whatever may be calculated to propagate the contagion, and to keep all parts of the town in a state of cleanliness. As these expurgators will be continually exposed to the contagion, they must not be permitted to come in contact with other people. They must be confined, when not occupied by their duties, in a place in which they can be segregated; and when employed in their duties they must be marched to them under a guard, and superintended by a guard during their work, in order that any contact with their friends or others may be strictly prevented.

"V. Persons to convey food from the markets to the places where it may be required, and which may be under the quarantine and hospital or dépôt regulations, or otherwise excluded from intercourse.

"21. In noticing the buildings and establishment necessary when a town is infected with the plague, the description, and course to be pursued on the occurrence of that evil, has in some degree been anticipated.

"22. If the quarantine on the frontier and at the town shall have failed to prevent the introduction of the pest, as soon as it be known that the plague has broken out in the town, every person attacked is to be removed to the hospital assigned for patients afflicted with this disease, and placed under medical treatment. Every possible arrangement is to be made for the comfort of the patients, and in their disposal and treatment every practicable attention paid to their religious feelings and rules of caste. The inmates of the same house in which the contagion may have appeared are to be removed to one of the dépôts for the suspected, whether strongly or slightly, to which the medical authority of the place may consider them to belong, taking with them such effects as they may require, and as may be deemed by the same authority free from infection. The other susceptible effects in the house infected to be conveyed to the dépôt for infected or suspected goods. The local authorities must take pains to ascertain where infection exists for those infected and their companions will perhaps conceal the fact as long as possible in order to avoid removal to the hospital or dépôts.

"23. The persons conveyed to the dépôts, whether of the strongly suspected or the slightly suspected, are to undergo such treatment as the medical authority may consider to

be beneficial for them, and the clothes or other effects which they may take with them are to be frequently exposed to air and heat and to be immersed in water.

"24. The suspected are to be carefully kept apart from the infected, and the slightly suspected from the strongly suspected, and as in either of these classes there may be some in whom the contagion is lurking, the inmates of the same depôt are as much as possible to be kept apart from contact with each other.

"25. If the plague should appear among the inmates of the suspected depôts, every infected person is to be removed to the hospital, and if this should happen in the depôt of the slightly suspected, it will probably be right to remove some or all of that depôt, according to circumstances, to the depôt for the strongly suspected. This will be a point for the medical authorities on the spot to determine.

"26. It is directed above that on the breaking out of plague in a house, the infected be conveyed to the hospital, and the other inmates of the house to the suspected depôts, and it is right and most desirable that this should be done in every instance, without regard to the rank or objections of the individuals concerned, as the safety of the community depends on these precautions. But if in any instance the local authorities should deem this mode of proceeding impracticable, and should consider it to be necessary to leave the infected and the other inmates in the house, the house is to be strictly blockaded, and no communication permitted from the interior to the exterior. Provisions conveyed to the house must be delivered without contact, and payment received with every possible precaution against contagion. The house is to be guarded as if it were a separate hospital, and the inmates to be treated accordingly.

"27. It may happen in some instances that a part of the family may refuse to be separated from the infected person, and insist on accompanying him to the hospital. It is hard to say what is to be done in such cases. It is easy to conceive, in instances of strong attachments, such as of a husband for his wife or a parent for his child, that death would be preferable to separation to the party to be bereft. All that can be said is, that separation must be the general rule, and that if in an extreme case the local authority see fit to allow any other to accompany the infected person to the hospital, such a one must be confined to the hospital until the patient die or recover, and subsequently to one of the depôts of the suspected, until he himself be reported quite free from contagion and suspicion.

"28. The house from which infected or suspected persons shall have been removed must be purified together with all articles left in it.

"29. The streets, courtyards of houses, drains, privies, etc., must be continually cleansed. All filth, rags and rubbish to be removed, burned, destroyed and buried. Every place to be kept clean and free from bad odour, so that the contagion may not be assisted either by loose things contaminated with the infection or by effluvia which might generate other diseases.

"30. It will be necessary to guard against the stealing of susceptible goods out of infected houses or stores, and the secreting of infected articles by individuals anxious to avoid their removal; for by such practices the disease is known to have been propagated in other countries.

"31. The avoiding of contact being the chief means of prevention and annihilation of the disease, it is advisable that the healthy inhabitants should avoid contact with one another during the existence of the pestilence, lest it be latent in some and thus conveyed to others; and it will be necessary, if the disease appear to be spreading, to confine the inhabitants to their respective houses and have their food furnished to them in the manner before described. The local authorities must exercise their discretion on this point with reference to the degree in which the pestilence may exist, and to the effect that such confinement for any length of time might have on the health of the inhabitants. But it cannot be too strongly remembered that contact is the propagator of the disease, and prevention of contact the most certain means of its annihilation, and that by proper precautions the disease may be instantly destroyed, whereas by neglect it may spread extensively, and seize on a multitude of victims.

"32. The attendants, in hospital on the infected, and the expurgators, who necessarily come in contact with infected persons and things, ought to be protected by all possible means against contagion. The most effectual protection has been found in the friction of oil over all parts of the body. Oil skin dresses and tar dresses have been tried, but have been found so intolerably hot that they have generally been cast aside by those using them. The friction of oil on the body and the use of dresses saturated with oil have afforded the best protection. The hospital attendants and expurgators, when attacked by the disease, will of course be made hospital patients like all other infected persons.

"33. The same measures herein proposed for towns must be applied to villages in which any symptom of the plague may appear.

"34. Towns and villages in which the contagion exists are to be blockaded and cut off from free communication with other places. Arrangements must be adopted by the local authorities for supplying such places with provisions, with every possible precaution to prevent the extension of the contagion to the people who bring supplies from other places.

"35. In the measures of restraint and coercion which any attempt to prevent or annihilate the plague must render indispensable, it is very desirable that we should carry the minds of the people along with us. Great pains must be taken to explain to the inhabitants of all classes the cause and object of the precautions and remedial measures prescribed. Persons ought to be sent to the villages for the same purpose, so that all people learn that the plague is spread by contact, and can only be suppressed by preventing contact. In that part of India where the plague appeared in 1819-20, and there is now no reason to doubt that it was the plague as then supposed, the villagers in its neighbourhood appear speedily to have acquired a knowledge of its contagious character, for they turned out with *latées* to resist the approach of any one from the infected villages; and it is probable that the pestilence was then arrested by that decisive conduct. It is much to be desired that the villagers throughout India may adopt the same opinion and conduct, in which case the disease will most probably be checked and annihilated.

"36. The co-operation of the Christian inhabitants may be confidently relied on in all measures necessary for the suppression of the pest, wherever it may break out; and the same may be hoped from the most enlightened of the natives. It may also be expected that these

examples will operate on the minds of the mass of the people, and reconcile them to restraints which otherwise they would unavoidably regard as irksome and oppressive.

" 37. The treatment of disease will of course be regulated by the medical functionaries as well as the details of the precautionary measures prescribed. Any additional precautions recommended by them may be adopted ; but the precautions ordered to prevent contact are not on any account to be neglected, although the local medical functionary may have adopted the anti-contagion theory. The proofs of the contagious character of the disease are too strong, and the consequences of unrestrained contact too dreadful, to permit the incurring of such a risk, by giving way to the theory, if it should anywhere exist, that the plague is infectious and not contagious.

" 38. The sentiments and intentions expressed in this minute are founded on the information contained in Staff Surgeon Tully's work on the plague in the Mediterranean Isles, corroborated in great measure by Dr. Hennen's published sentiments on the same subject, and by other authorities ; and also on the measures adopted with marked success by Sir Thomas Maitland for the suppression of the pest, wherever it appeared under his Government. It is my intention to reprint Mr. Tully's work for circulation and general information, and also to print, with the same view, the reports of the medical officers—Messrs. McLean, Keir, and Irvine,—who have devoted themselves to the investigation of the disease now raging in Rajwara,<sup>1</sup> and merit the highest praise for their conduct, as well as for the valuable information which they have procured and furnished.

" 39. A copy of this minute is to be transmitted to each of the Divisional Commissioners for their guidance, with directions to convey corresponding instructions to the several Magistrates under their orders. It is not intended that any of the measures proposed should be carried into effect at present or without sufficient cause, for, with the blessing of Divine Providence, the calamity which is now remote may be averted from these territories. But it is desirable that all local authorities should be apprized how they are to act if it be the inscrutable will of the Almighty that we should be scourged with this pestilence, and that in the meanwhile they should look around them and reflect on the probable means within reach of carrying the proposed measures into effect when necessary, so as not to be taken by surprise if the calamity should invade us.

" 40. Some expectation may be entertained that the hot weather now setting in will extinguish the plague as happens commonly in Egypt. But this cannot be relied on ; similar expectations were in vain entertained with respect to the cold weather just past, as the winter is supposed to stop the pest in Europe. Even if the hot season should check the disease, it may lurk somewhere in some infected thing, and break out again when the season may be more favourable for its propagation.

" 41. A copy of this minute is also to be transmitted to the Governor General's Agent in Rajputana and Commissioner of Ajmer, in order that he may carry the proposed measures into effect in the territory under his authority, both for prevention in places which are free

<sup>1</sup> Rajputana.

from the pest but in danger, and for its suppression where it may have appeared; and that he may exert his influence with the Native Princes in his circle for the adoption of similar measures in their dominions.

"42. With the same view a copy is to be transmitted to the Resident at Gwalior and the several Political Agents under the authority of this Government.

"43. And in order to draw the attention of the Native States to the subject more forcibly, if possible, a letter may be addressed to each, urging the necessity of measures of precaution, prevention, or suppression, as the case may be, and referring them for full information to the Resident or Agent charged with our relations at their courts.

"*P.S.*—I have omitted in the body of this minute to mention a very essential precaution which must be observed in places infected with plague. Loose animals, such as dogs and cats, that roam from street to street, or from house to house, ought to be destroyed, for they are very likely to convey the infection. Domestic animals of the same kind ought to be tied up and kept carefully from roaming, for although the dwelling where they are domesticated may be healthy, and they not likely therefore to carry the infection thence, that will afford no security against their receiving it elsewhere and bringing it home."

These papers are of such interest at the present time that I have thought it of great importance that they should be republished in the Medical History of Rajputana. The reports of the Surgeons shows that they were all men of great ability and that they were keen observers, while the Government minute is full of valuable material for study even at the present time. It shows, moreover, that more than 60 years ago the same difficulties arose that are experienced now.

#### ENDEMIC DISEASES.

Goitre is very rare. Guinea-worm is very prevalent, especially in the Hilly Tracts of Mewar, in Marwar, and until lately in Ajmer, where, however, an improved water-supply has much diminished the number of cases. It is rare in the eastern districts.

#### MALARIA AND OTHER FEVERS.

The following notes are taken from Dr. Bryden's History of the European Army in India and of the Native Army and Jail population in Bengal up to the year 1876:—

*Epidemic Malaria.*—"In 1834," writes Dr. Bryden, "fever was again terribly prevalent. The fever of this epoch is the epidemic which I associate with the typhus which for years after prevailed over Upper India. This fever of 1834 was also provincially distributed. It raged over Western Rajputana (Ranken, page 39), and I find that 179 deaths occurred among the Native Troops in Nussurabad, Neemuch and Mhow; the Superintending Surgeon of Neemuch says that the fever began in August in Nussurabad and rapidly extended over Rajputana, and the influence was partly felt as far south as Mhow. At Nussurabad and Neemuch the sick of some corps exceeded one-third of the strength. In November, with the setting in of the cold weather, the disease declined. What was called scurvy was universal over the same tract in 1833—35, and the Pali plague appeared in 1836. The great famine of 1837 followed

in the North-West, and from 1836 to 1838 there is a continuous record of the existence of typhus and relapsing fevers. Judging from parallel history, I take this to be the manifestation in Upper India of the deadly remittent of Twining and Martin."

Again:—

"The localities which malaria prefers are the same chosen by cholera; naturally dry stations, such as Meean Meer or Nusserabad, are stricken by malaria and by cholera as a moving epidemic. They suffer for a certain number of days or weeks from both epidemics, and into this short period much suffering may be compressed, although no true localisation has taken place."

*Typhus Fever.*—"Besides the typhus period, 1852—56, during which contagious fevers established themselves on the Punjab Frontier and showed themselves in Rajputana, in Rohilkhand, and in the Himalayas, the history of the past sixty years brings up three special occasions on which typhus was spread over India from the Himalayas, through the North-Western Provinces and Rajputana, to Cutch and Guzerat. These periods are 1816—20; 1836—38 and 1859—65. The history of the first period in Western India has been preserved by the publication, in the first volume of the transactions of the Medical and Physical Society of Bombay, of the memoirs communicated to the Medical Board by the officers of the Northern Division of the Presidency who saw and treated the fevers. We can supplement these for Northern India by Jail records, which prove the presence of typhus at their time in the north-west, and which we know to have prevailed then or very shortly afterwards in the interior of the Himalayas as the *Mahamari* of Kumaon. Ranken's account of Pali plague of 1836—37 contains the history of typhus spread from the foot of the hills to Western Rajputana, and I find the disease as late as 1838 decimating the prisoners of the Agra Jail. The third general outbreak, commencing in November 1859, has been the subject of many interesting memoirs, chiefly by medical officers who have met with it in the jails under their charge."

With regard to epidemic malaria, typhus, and famine of 1833—38, and scurvy preceding the outbreak, he proceeds thus:—

"A peculiar state of the population of Western Rajputana preceded the fever epidemic of the rains of 1834. Scurvy was universal, and the troops over the division became unfit for service. The reports on this diseases are dated July 1833."

The report for Beawar states that the scurvy first appeared in March 1833, and that it still continued to prevail among the troops and in the town and district. There was scarcely a man of the battalion unaffected. The fever cases appeared to be much influenced in their symptoms and progress by the prevalent diathesis. The writer is at a loss to assign any cause for the scurvy. He says:—

"The disease appeared long before the scarcity, and after the scarcity many who could afford to live well became affected. I know not whether it may be attributable to the drought continued at this place for nearly two years, and to the water, always containing much saline matter, containing from the same cause these matters in a more concentrated form."

The report for Nasirabad mentions that until September 1833, there was not a single case of scurvy. During fourteen years of occupation the troops had not felt the effects of any such visitation. It is said that it is only after a succession of dry seasons, such as had been experienced, that the disease appears. It is very curious to mark, in connection with the bubo plague which followed, that ulcerations of the groin are mentioned as an indication of the diathesis. After detailing some exceptional appearances the report gives the following as typical :—

“After admission in the hospital, there was languor and perhaps a paroxysm or two of fever, with at times regular evening accessions. Day after day the blunt projecting edges of the gums grew more prominent, and became soft and soon assumed a spongy hæmorrhagic appearance. The mouth and tongue got pallid and the breath emitted a heavy sickening odour. Now the pulse increased in frequency steadily throughout the day ; irritative fever set in, and tormenting pains were developed in the muscles or in the tendons of the extremities, seldom in more than one member, unless when the cases were of considerable aggravation. These sites got tumified, exceedingly tense and non-elastic, and having the skin over them of a colour unnaturally dark. They were more or less diffused, sometimes occupying the whole circumference and the extent of the limb, which would have a shining polished appearance. Sometimes they would only embrace a portion of the extremity such as the calf, and then the colour was generally darker. Vibices occasionally came out in other places, without either pain or swelling. In this state the patient's flesh and strength wasted rapidly. The teeth embedded in the flabby gums felt loose and were unfit for the purpose of mastication, and a horrid fætor now proceeded from the mouth. Despondency took entire possession of the mind, there was no sleep from intense suffering, and no appetite. At this period every symptom underwent rapid advance and the unfortunate subject sank eventually and more immediately under dropsical effusion.

“On this state of matters followed the epidemic malarious fever of 1834, and in the spring of 1836 relapsing typhus was epidemic over Rohilkhund, and the Pali plague in Rajputana. Throughout 1837 there is a long record of typhus over all the same area. Ranken tells us that, while the reported plague prevailed in the west, common intermittent and remittents existed in the intermediate space ; and an infectious yellow fever devastated our villages and jails in Upper India. Appendix VII of the Report proves that the same yellow fever existed in Rajputana. Dr. Irvine's letter states that at Jodhpur, where thousands have died from the present epidemic of yellow fever in very few or none of the cases buboes were observed ; hence the malady was said not to be the plague, and to have no connection with the Pali disease.

“The great famine of 1837-38 came in the midst of this epidemic. We know that it did not introduce the typhus, since the fevers had already been epidemic for two seasons. The accounts of this famine are voluminous, and I have already quoted details regarding it in another report.”

As an instance, in the end of November 1864, true relapsing typhus burst out in the native jail at Jaipur, and 189 prisoners died. The Medical Officer says expressly that the peculiarity of the fever of 1864-65 was that it assumed the recurring type : “no less than 85 patients were attacked three times, out of which number 19 died.”



This outbreak was the re-development, in a milder form, of a deadly yellow continued fever which prevailed in the year previous. Its severity may be judged of by one sentence from the Jail Report of 1863 :—

“There were 11 deaths, which took place suddenly in the jail before they could be admitted to hospital ; these occurred at the time when the epidemic raged at its worst then the first and the second stages appeared simultaneously, and death took place suddenly from convulsions and black vomit.”

In one month in December 1863 there were 255 admissions and 66 deaths from this yellow fever in the Jaipur Jail.

## CHAPTER X.

### PRISONS AND THE HEALTH OF PRISONERS.

Not much attention was paid to the condition of prisoners in the jails until about the time when Sir H. Lawrence was Agent to the Governor General ; he advised the Jaipur Darbar to erect a suitable jail, which was done shortly after the Mutiny.

Dr. Irvine, at an earlier date, refers to the miserable condition of the prisoners in Ajmer, but they were infinitely better off than those who were confined in Native States, where even until five and twenty years ago, in one State at least, the prisoners begged their bread, and in others, still more recently, where men and women slept and ate within sight of each other. In almost all the use of the long iron *bel* chain was universal. This chain has only recently been abolished in some of the jails. It was passed through the fetters of a long row of prisoners ; so that if one man had to rise in the night many others were disturbed.

The great evil in all prisons, however, was overcrowding, which was the cause of much sickness and heavy mortality. The practice in all Native States of making the prisoners work in the roads or in gardens, although from some points of view objectionable, was on the whole advantageous, in that it allowed the jail barracks to be opened and well ventilated throughout the day.

The Central Jails of States have been much improved and some are as well managed and are as healthy as any in British territory. The district jails and lock-ups are still in most States in a very objectionable condition, but is hoped that they will gradually be improved.

## CHAPTER XI.

### MEDICAL JURISPRUDENCE.

Medical Jurisprudence might truly be stated to have been non-existent in Rajputana until recently, except in Ajmer-Merwara, where the Civil Surgeon's opinion and assistance

were at the disposal of the authorities. Even after the medical institutions of the different States came generally under the supervision of medical officers, they were rarely asked to afford such aid to the Courts. In some States they are now consulted freely, and the Hospital Assistants are expected to give reports in all such cases which are brought to them or to which they are called.

In the Jaipur State the practice has been, since the present Chief's accession, almost the same as in British territory. A *chalan* or letter requesting that an examination may be made of the person of the plaintiff or defendant, or of the body of a deceased individual, and stating what is known of the affair, is sent to the Hospital or Dispensary, and a report is requested and is sent in, on printed forms, which are identical with those used in British territory. Autopsies are made whenever there is any suspicion of foul play, as well as chemical examinations when it is supposed that poison may have been administered. A preliminary examination in the latter case is made at Jaipur, and, in important or doubtful cases, the viscera or other objects are forwarded to the Chemical Examiner at Agra for full report. All reports made by Hospital Assistants in the districts are sent to the Superintendent of Dispensaries for his approval and correction if necessary.

Unfortunately in many States the objection to *post-mortem* examination is so serious as greatly to interfere with the satisfactory administration of justice.

Drowning in wells is very common, and, there is reason to believe, is not unfrequently a misnomer for a violent death, dead bodies being sometimes thrown into the water in order to conceal crimes. Many such deaths may be prevented by covering wells and by raising or repairing the parapets. This has been done extensively in Alwar. Poisoning with arsenic by jealous husbands, wives, and lovers is often reported. Opium is also employed, but more often perhaps is the cause of accidental death. *Datura* poisoning took the place of *thaggi* which was once so common in Rajputana, but it does not appear to be so much used as formerly. Abortion from blows and the use of abortifacients is very frequent.

Cruel murders with the sword and various daggers occur, and there are occasional suicides with those weapons.

Thieves also are responsible for many such injuries, and are in turn cut down in the same way by the police. The wandering Brahmini bull does great damage, especially in causing abdominal wounds which are frequently fatal. The careless use of gun-powder, and falls into fire-places or from trees, lead to many injuries. Suicidal hanging is extremely rare. Snake-bite cases are common, and in some places tigers, panthers, bears, and even wolves, and jackals in the case of children, kill and injure the people.

The principal snakes are the Cobra, *Echis Carinata*, and the Karait.

In some parts of the country, notably in the Kotah State, children are much tortured by being burned with hot irons in the hope of curing them of many disorders, such as enlarged spleen, chronic diarrhoea, etc.

## CHAPTER XII.

### FAMINE.

The subject is best dealt with in the local histories. The regulations on the subject are published separately, and need not be repeated here.

All such as bear on medical arrangements in Native States are detailed in the Medico-Topographical Account of Jaipur, pages 113 to 114. A history of famines in Rajputana is given at pages 114 to 122 of that work, with a table showing the average price of food-grains which were sold at Jaipur for both spring and autumn crops from 1761 to 1893.

As a good deal of additional information has been collected, and the Jaipur book may not be accessible to all, the table, with the added matter, is reprinted here and brought up to date. In connection with this subject the notes on locusts, which have been published from time to time by the India Museum, Calcutta, are interesting.

### HISTORY OF FAMINE.

I have endeavoured to procure information regarding famines in Rajputana in former times, but unfortunately no records are available, or at all events, are inaccessible, from which a correct account can be drawn up. Mr. C. Blair, Executive Engineer, Public Works Department, who published a work on Indian famines in 1874, gives a list of famines and scarcities of which the following may have affected Eastern Rajputana:—

Year.

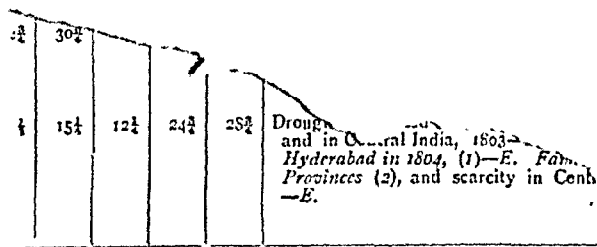
A. D.

- 942. Upper India.
- 1344. In and around Delhi.
- 1345. Connected with disturbed state of country under Mohamed Toghluk. (Report of Indian Famine Commission.)
- 1556. Delhi Districts.
- 1596. Central India, reported to have extended over the whole of Asia.
- 1650. Famine in Ahmedabad. (Report of Indian Famine Commission.)
- 1661. North-Western Provinces and Punjab.
- 1659-60. (A great scarcity throughout India in the reign of Alungir.)
- 1718. Ditto and Surat. Bajra cost 2 seers per rupee. Great mortality from famine and sickness.
- 1747. Ditto.
- 1791-92. Bombay and Marwar. (Report of Indian Famine Commission.)
- 1786. North-Western Provinces and Punjab.
- 1803. Ditto and Bombay.
- 1813. Ditto and Rajputana.
- 1819. North-Western Provinces.
- 1825-27. Ditto.
- 1832. Ditto and Madras.
- 1837. North-Western Provinces.
- 1860. Ditto, Punjab and Bombay.
- 1868-70. Ditto, ditto and Rajputana.

Mr. Blair knew Rajputana well, and, as regards the province, records that he suspects that "it has been subjected to many more such calamities than are here recorded against it." The great famine of 1813 was "the most calamitous in Rajputana of which there is any record; grain indeed failed and was not to be purchased, but there was plenty of grass and the herds were saved." So wrote Colonel Brooke, Agent to the Governor General for Rajputana, but his account of the famine of 1868-69 shows a more terrible state of things. Western Rajputana suffered most, but in the Eastern districts the distress was great; not only the crops failed but the grass also. In 1868 and in 1869 the rainfall was scanty and irregular in Marwar. Nearly all the remaining cattle died, and cholera appeared amongst the inhabitants; and, lastly, even of the little corn that was sown, seventy-five per cent. was destroyed by locusts. Eastern Rajputana suffered comparatively little. The people in ancient times fled to Malwa, where famines are unknown, or to Gujarat, where there was generally a superabundance of food, or at all events of grass, on which their animals, which they drove before them, were preserved; but in 1868 the failure of the rainy season had been more extended and had reduced the food supplies in Malwa. Moreover, heavy floods had injured the grass in Gujarat, so that it was difficult to obtain relief. Happily, railways now run through Rajputana and Malwa, and this makes it more easy to mitigate the suffering, which must, however, always exist to some extent in years of famine and scarcity; and of course the increase of irrigation works is another most important means for effecting the same end.

The rainfall in the monsoon season of 1868 was only  $5\frac{1}{2}$  inches in Jaipur. Owing to a more ample supply of wells than in some of the neighbouring States, the harvest was better than in them, but only amounted to one-quarter of average years on the irrigated lands, and on non-irrigated lands, as in Shekhawati, was very small indeed. The dearth of grass, however, was very serious.

Through the courtesy of Rao Bahadur Kantee Chander Mookerjee, C.I.E., Chief Member of Council at Jaipur, I am able to give a price list of the principal food-grains for both the spring and autumn crops from the year 1761 A.D. to 1893 (since extended to 1897). I have added notes wherever it has seemed desirable:—



in Agra known as the Chalisa—G. Famine raged in the Punjab and in the  
believes it extended into Rajputana. The increased prices show that it did—E.  
e North-Western Provinces—G. Copious rain fell in September and October 1783  
of 1784 was abundant; but the good effects of improved prices do not seem to have  
fud-dula of Lucknow built the great Imambara at Lucknow as a famine work in  
licates women, whose veils had never been lifted before the public gaze, came forth from  
work, and in order to save their honour and keep their identity unknown their names  
rages paid under cover of darkness."



*Average price of food-grains sold at Jaipur, in seers per rupee—continued.*

YEARS.	RABI (Spring).			KARIF (Autumn).			REMARKS.
	Wheat.	Barley.	Bajra.	Wheat.	Barley.	Bajra.	
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	
1783* A. D. .	23	28½	28½	15	17	15½	Drought in Upper India—E. Famine in Madras and scarcity in Bombay, (1)—E. The whole country depopulated in the great famine of 1783 (Chalisa). Thousands of fugitives also came from Bikanir.
1784* „ . .	11½	14	12	11½	17	16½	Famine in Upper India from the Karmanasa to the Sutlej (2)—E.
1785 „ . .	26	37½	34½	26½	47	42	
1786 „ . .	37	58	50½	26	46½	46½	
1787 „ . .	25½	37½	38	22½	36	40½	
1788 „ . .	29½	28½	36	27	28½	40	
1789 „ . .	3 ½	45½	42	29	40	38	
1790 „ . .	22½	28½	25	17	20	18	The terrible Chalisi, Sambat 1840. Grain four seers per rupee in Karnal—K. Delhi district visited by scarcity—B.
1791 „ . .	15½	11½	16½	15½	20½	19½	
1792 „ . .	17½	22½	16½	12	17	15½	Scarcity in north part of Madras. Intense famine in Hyderabad and Southern Mahratta country. Severe famine in Deccan, Guzerat and Marwar—E.
1793 „ . .	15½	20	47½	21½	34½	37	
1794 „ . .	22½	32	32	24	35½	34	
1795 „ . .	27½	36½	41½	26½	41½	49½	
1796 „ . .	30	45½	48½	28	48½	46½	
1797 „ . .	33½	51½	60	33	57½	64	
1798 „ . .	40	60½	63½	31	56	63½	
1799 „ . .	40	60	56	35	55½	54½	
1800 „ . .	36	46½	40	18	22	22½	
1801 „ . .	35½	38	24½	31½	40	34	
1802 „ . .	32½	39½	29	30	41½	37½	Drought in South Hyderabad and Deccan—E.
1803 „ . .	22½	32½	30½	14½	18	15	A severe famine in the North-Western Provinces, but limited in area. It lasted until the autumn of 1804—B. and clearly reached Jaipur—B. Total failure of crops. Little mortality in Karnal—K.
1804 „ . .	13½	18½	15½	12½	24½	25½	Drought in Ceded Province of North-Western Provinces and in Central India, 1803—E. Famine in Deccan and Hyderabad in 1804, (1)—E. Famine in North-Western Provinces (2), and scarcity in Central India, Rajputana—E.

\*1783-84.—The great famine in Agra known as the Chalisi—G. Famine raged in the Punjab and in the North-Western Provinces. Girdlestone believes it extended into Rajputana. The increased prices show that it did—E. Said to be the most severe known in the North-Western Provinces—G. Copious rain fell in September and October 1783 in Hissar, and harvest of the spring of 1784 was abundant; but the good effects of improved prices do not seem to have reached Jaipur until 1785—H. Usuf-ud-dula of Lucknow built the great Imambara at Lucknow as a famine work in 1784-86, "when even tender and delicate women, whose veils had never been lifted before the public gaze, came forth from the inner chambers to labour in the work, and in order to save their honour and keep their identity unknown their names were called over at night and their wages paid under cover of darkness."

## Average price of food-grains sold at Jaipur, in seers per rupee—continued.

YEARS.	RABI (Spring).			KARIF (Autumn).			REMARKS.
	Wheat.	Barley.	Rajra.	Wheat.	Barley.	Bajra.	
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	
1805 A. D. . .	16½	25¼	23½	16½	25	25½	
1806 „ . .	24	34	30	10½	29½	30½	Drought in Central districts of Madras from Trichinopoly to Vellore—E.
1807 „ . .	22½	29	26½	20½	26½	21½	Famine in Central districts of Madras—E.
1808 „ . .	18	25½	18	11	12½	12	
1809 „ . .	16½	21½	17½	14½	22½	24½	
1810 „ . .	23½	33½	29½	26½	39½	35½	
1811 „ . .	Records destroyed by			white ants.			Round Agra crops indifferent in this year—B.
1812 „ . .			Ditto	ditto			Rains failed in Mathura; no autumn harvest; spring crops 1813 failed.—G. Drought in Gujrat, Kachh, and Kathiawar, and to some extent in Madras, and also in Rajputana and Central India—E. Famine in Kachh and Kathiawar; intense in parts of Rajputana. Scarcity in parts of North-Western Provinces and Madras—E.
1813 „ . .	7½	8½	8	13½	18	25	Famine prevailed in and around Agra in 1813, and clearly about Jaipur. Rains late in 1813—B. Half the landed property in Agra Zilla changed hands—G. Grain 10 seers per rupee in Karnal—K.
1814 „ . .	16½	22	21	22	20½	29½	
1815 „ . .	20½	27½	25½	19	30½	30½	
1816 „ . .	19½	26	25½	18½	25½	25½	
1817 „ . .	16½	21½	19½	14½	17	16	
1818 „ . .	15	21½	14½	12	18½	20½	
1819 „ . .	17½	25½	21½	15	22½	21½	Famine attacked the North-Western Provinces and Bundeekhand.
1820 „ . .	14	18½	18½	11½	16½	20½	
1821 „ . .	16	20	20½	19	26½	26½	
1822 „ . .	20	26½	26½	19½	34	31½	
1823 „ . .	24	36	30	24½	49½	50½	Drought in Madras—E.
1824 „ . .	26½	43½	45½	18½	28½	24	Drought in Bombay. Famine in Madras, chiefly in the North—E.
1825 „ . .	18½	25	23½	19½	26	26½	Scarcity in Bombay, chiefly in Gujrat and the Northern Deccan—E. Nothing sown in Karnal in 1825. Distress still more severe in the South—K. Famine or scarcity recurred in the North-Western Provinces and adjacent countries in 1825, 1826, 1827—B., D. Great drought in Delhi.
1826 „ . .	21	29	26½	21	37½	39½	

## Average price of food-grains sold at Jaipur, in seers per rupee—continued.

YEARS.	RABI (Spring).			KARIF (Autumn).			REMARKS.
	Wheat.	Barley.	Bajra.	Wheat.	Barley.	Bajra.	
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	
1827 A. D.	23½	38	33½	16½	45½	48	
1828 „	20½	50	47½	18½	38½	45½	
1829 „	23	35	41½	21	28½	29½	
1830 „	25½	30½	26½	22	33½	30	
1831 „	25½	36½	30½	25½	45½	51½	
1832 „ (a)	29	60	57½	26	42	38½	(a) Famine or scarcity occurred in 1832 in the North-Western Provinces and adjacent countries. Was this in 1833?—E. Most terrible famine known in Karnal—K. Rains failed in Karnal, 1834. Great distress—K., Jaipur.
1833 „	21½	26½	28½	14½	16½	14	(b) (East), famine and locusts, 1832. Drought in the Northern Districts of Madras except Ganjam in the south of Hyderabad and southern districts of Bombay—E. 1833. Drought in north part of Bombay in Rajputana and parts of Punjab, North-Western Provinces, Famine in north part of Madras (1). Intense in Ganjur. Scarcity in North Deccan and Gujarat, in Division of the Panjab and the of North-Western Provinces (2)...
1834 „ (b)	16½	25½	15	14½	25½	31½	
1835 „	20	28½	30½	19½	30½	33½	
1836 „	25	30½	37	23	34½	35½	
1837 „ (c)	20	23½	23½	16½	20½	19½	(c) 800,000 deaths in the North-Western Provinces. Harvest, indifferent from 1832, prevailed for the autumn harvest of 1833. Rain failed in Mathura.
1838 „ (d)	14½	21	18	14	22½	27½	(d) The 1838 famine known as the Chauranwa, Sambat, 1894—G. Drought in Karnal, 1837—K. East Jaipur famine and scarcity of rain 1837. Drought in 1838, North-Western Provinces, Eastern States of Rajputana and south-east part of Punjab—E.
1839 „	16½	24½	25½	14½	23½	25	Drought in Gujarat, Kachh and Kathiawar—E. Intense famine in Central Doab and Trans-Jumna Districts of North-Western Provinces, and in Delhi and Hisar Divisions of Punjab, 1839.
1840 „	13	17½	17½	14½	22½	25	Scarcity in Gujarat, Kachh, and Kathiawar—E.
1841 „	18½	26½	26½	20½	28½	29½	
1842 „	20	26½	27	20½	30	32½	Great mortality from fever in Delhi district. Crops died for want of labour—K. Rains failed in Karnal—K.
1843 „	20	28	28½	17½	27½	28	
1844 „	20	26	24	20	27½	24½	Scanty rainfall in Deccan—E.
1845 „	22	3½	23½	18	28	29½	Scarcity in Deccan—E.
1846 „	22½	30	36½	19½	28	26½	
1847 „	20½	28	22½	15½	22½	21½	East Jaipur Famine, 1847.
1848 „	18½	22½	19½	17	19½	19½	
1849 „	17½	25	22	17½	31	32	



## Average price of food-grains sold at Jaipur, in seers per rupee—continued.

YEARS,	RABI (Spring).			KARIF (Autumn).			REMARKS.
	Wheat.	Barley.	Bajra.	Wheat.	Barley.	Bajra.	
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	
1850 A. D.	24	34½	31½	23½	35½	36½	
1851 "	25½	35	32	18½	28	29	Drought which extended into 1852 in Karnal—K.
1852 "	22½	34	30½	17	31	33½	
1853 "	24	33½	32	22	28½	24½	Drought in ceded districts of Madras in S. Hyderabad and Sholapur and Kalady districts of Bombay—E.
1854 "	24	32	27½	25	37	37	Famine in Bellary. Scarcity in adjoining parts of Madras, Hyderabad and Bombay—E.
1855 "	23½	32	31	22½	3½	28	
1856 "	23	30½	24	19½	29	30	
1857 "	25	36	30	24½	32½	27	
1858 "(a)"	25	34½	24	23	34	30	(a) Scanty rainfall in Karnal—K. (b) Only showers in Karnal—K. (c) Famine in 1860-61 in the North-Western Provinces and Punjab. Deaths 2,000,000 (thought to be over-rated)—B. D. (d) Bad famine also in Karnal, K., and Hissar—H. 1860. Drought in part of North-Western Provinces and Punjab and neighbouring states of Rajputana—E. 1861. Famine in Upper Doab of North-Western Provinces, in Delhi and Hissar divisions of Punjab, and in adjoining parts of Rajputana. Scarcity in Kachh—E.
1859 "(b)"	23½	33½	32	19	34	33½	
1860 "(c)"	19	33	30	12½	17	14½	
1861 "(d)"	15½	29½	19	12	25½	25½	
1862 "	18	26	22½	17½	24	22	
1863 "	18	22½	15	17½	24	17½	
1864 "	17½	23½	17	13½	22½	19½	
1865 "	12½	20	17½	10	15½	15½	1865. In Allahabad supposed to be on the verge of a famine. Drought in north part of Mysore; in South Mahratta districts of Bombay, in Orissa and Behar, and all Western Bengal—E. 1866. Famine in Ganjam and Bellary districts of Madras in Orissa (intense) and in Behar. Scarcity in all adjacent parts of Madras, Mysore, Hyderabad and Bombay, and in Central and Western Bengal—E. (a) The great Rajputana famine of 1868 and 1869, felt most severely in Marwar, and Ajmer—B. D. Both crops failed in Karnal in 1868. Scanty harvest in 1869. No rain until August, more severe famine than in any other Punjab district—K. Severe in Hissar—H. The starving population from Bikaner, Jaipur, etc., poured first into Hissar—H. 1868. Drought in Rajputana, Trans-Jumna Districts of North-Western Provinces, N. and S. E. districts of Central Provinces and in Punjab from Jumna to Indus—E. 1869. Famine in Western Rajputana (intense) in Trans-Jumna Districts of Allahabad and Delhi, and in Hissar divisions of Punjab. Scarcity in adjacent parts of North-Western Provinces and Punjab, in Gujarat, Kachh and North Deccan, and in N. and S. E. districts of Central Provinces—E. 1873. Drought in North Behar and in a part of North-Western Provinces and Oudh—E. 1874. Famine in Behar and scarcity in the strip of North-Western Provinces and Oudh adjacent—E. 1876. Drought in
1866 "	15	22	17½	14½	30	20½	
1867 "	16½	24	21½	14	23½	24	
1868 "(a)"	15	20	18½	9½	11	9½	
1869 "(b)"	6	8	6	7½	14	16	
1870 "	11	17	17	14½	20½	20½	
1871 "	19	23	22	14	25½	22½	
1872 "	17	26	21	14½	24	24½	
1873 "	13½	20½	19½	12½	17	16	

*Average price of food-grains sold at Jaipur, in seers per rupee—concluded.*

YEARS.	RABI (Spring).			KARIF (Autumn).			REMARKS.
	Wheat.	Barley.	Bajra.	Wheat.	Barley.	Bajra.	
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	
1874 A. D.	17	26	21	14½	24	24½	all Madras and Deccan. Mysore and S. part of Hyderabad—E. 1877. Drought in Central Provinces, North-Western Provinces and Punjab—E. 1878. <i>Famine in Madras, Bombay, and Hyderabad (1)—E. Famine in North-Western Provinces and Kashmir; scarcity in Punjab (2)—E.</i> Autumn rains failed in Hisar, and scarcity prevailed 1877-78—H. Famine in Mathura and scarcity in other districts, S. Delhi also. Mortality very high in Mathura. Poor-house open in Mathura—E.
1875 "	18	25½	18½	16½	25½	24½	
1876 "	16½	23½	21½	17	29	26½	
1877 "	19½	26	25	19½	29	29	
1878 "	12½	15½	14	10½	12½	12	
1879 "	13½	19	16½	9½	13	13½	
1880 "	13	19½	17½	13	24½	23	
1881 "	15½	22½	21	15	24	22	
1882 "	16½	24	21½	16½	23	22½	
1883 "	17½	23½	20	15½	24½	22½	1881. Rains also slight.  1883-84. Summer and winter rains failed in Karnal. Grass famine intense—K.  1890. Drought in Madras—E. 1891. Scarcity in Central Madras, more especially in Salem, Coimbatore, Nellore and Bellary districts—E. 1891-92. Scarcity in Rajputana most pronounced in Ajmer and neighbouring districts.  1895-96. Famine in North-Western Provinces, parts of Bengal and Central Provinces. 1896-97. Continued to the summer; not much felt in Rajputana. Prices were high chiefly on account of the export of grain.
1884 "	15½	22	20	16	23	21	
1885 "	18½	24	20½	19	29	28	
1886 "	21½	32½	28½	16½	28½	23½	
1887 "	19	33	25	12	25½	22½	
1888 "	12	21	17½	11½	15	14½	
1889 "	15½	21½	15½	16½	22½	19½	
1890 "	16	23½	21½	14½	21	18½	
1891 "	14½	19	16½	13½	20	17½	
1892 "	11½	15	12½	13½	20	19	
1893 "	14	18½	17	12	20½	19½	
1894 "	16	32½	20½	17	31½	22½	
1895 "	11½	18½	18½	15½	28½	15½	
1896 "	12½	17½	10½	7½	11	13	
1897 "	8½	10½	12	5½	13½	9½	

Mr. Eliot writes as follows :—" One of the most remarkable relations is the tendency for famine to occur in some parts of North-Western India in the year succeeding that in which famine has prevailed in Madras." I have italicised examples (marked 1 and 2) in the column of remarks attached to the tables.

The following abstract from a paper, the author of which I have omitted to record, is interesting (I think it is Mr. Eliot) :—

"Still there is one feature in the chronological table of the famines which have occurred over India during the past hundred years, which is both interesting and suggestive. If it be granted that a general famine, that is, one affecting both the Peninsula and Northern India, is indicative of the general failure of the South-East Trades and of the South-West Monsoon, and that local famines or scarcities are indicative of the influence exercised by local actions, the table above quoted shows that in 1791-92 famine was felt over Rajputana, Bombay, and Madras; in 1812-13 famine occurred over the North-Western Provinces, the Punjab, Rajputana, and Central India; in 1876-78 famine occurred over Madras, Bombay, the North-Western Provinces, the Punjab, Rajputana, and Central India; and now in 1895-97 famine is stalking over the same regions. The intervals between these occurrences are as follows :—1791 to 1812, equals 21 years; 1812 to 1832, 20 years; 1832 to 1876, 44 years; and 1876 to 1896, equals 20 years. In 1802-04 there was also a famine which affected both the Peninsula and Northern India; but omitting this recurrence of famine after only eleven years, the above table shows that there is a tendency to the recurrence of general famine over both the Peninsula and Northern India every 21 years. In 1853-54 famine was only experienced in Madras, but the tendency to famine was there, though scarcity does not appear to have spread into Northern India."

Careful study of reports, histories, old records, and particularly of vernacular literature, could no doubt add greatly to our knowledge of the history of famines, epidemics, periods of great sickness, failure of the rains, etc., and I hope many will be sufficiently interested in the subject to make in the future considerable additions to the facts which I have brought together.

#### FAMINE IN RAJPUTANA IN 183 .

The exact year is doubtful, but the current views on management of famine are of interest :—

The periodical rains failed and authority was given by the Agent to the Governor General, Colonel Sutherland, to Captain Dixon, Superintendent at Beawar; to carry on irrigation works with the view of providing labour for those who were starving in Kherwara. Happily rain fell all over the country from the 4th of September in such quantity as had not been known for some years, and the price of grain at, for example, Jodhpur, fell in consequence from 6 to 12 seers per rupee. It is worthy of note that Mr. Mansell, Magistrate of Agra, recommended a money payment sufficient to yield one seer of wheat flour per man, 12 chittaks per woman, and 8 per child, with similar quantities of firewood instead of serving out food.

He considered that if the evil of epidemic disease followed the calamity of starvation, the subject would become one of pure medical science, with which at places like Ajmer the medical force of the Agency and Cantonments would be able to grapple.

On the question of supply of grain from Agra, he wrote that it would take 45 days to transport it to Ajmer, and that the daily consumption of 60,000 men at one seer each

would be 1,500 maunds, which would require 50 carts. From this it is easy to calculate what difficulties stood in the way of carriage at that time, and what an enormous number of carts would be required. The distance is only 230 miles.

On the 14th September the price of wheat at Ajmer had fallen to 15 seers, thus removing all anxiety.

The regular fall of rain at the monsoon period is shown from the correspondence to be a matter of life and death in Rajputana.

Colonel Sutherland, in writing to Mr. Mansell, refers to the bad policy of the Native States in prohibiting the export of grain and in levying transit duties. He proposed to utilize the 15,000 bullocks, which annually carried salt from Sambhar to the Doab, to bring back grain. Captain C. K. M. Walter, Political Agent, Bharatpur, during the famine of 1860-61, when at the worst the price of wheat fell to four seers and other grains to ten seers per rupee, wrote that distress was not as great there as in parts of Upper India, which he attributed to distribution of grain from pits, in which it had been stored, by the Darbar through headmen of villages, and to relief being administered at the head-quarters of Parganas, and the setting on foot of works of utility in most of them in which employment was given.

In Sirohi two severe famines occurred in 1746 and 1785, and others less severe in 1803. Owing to scanty rainfall the rain crops failed in 1810, 1811 and 1812, and the greatest scarcity prevailed throughout the country.

In 1812-13 grain was at times not to be purchased, and the people were driven to eat bark, roots, and leaves of trees and shrubs. Many died of starvation.

The distress extended to neighbouring States.

Rain fell in 1813, but the people were so debilitated that they could not take advantage of it, and sank in hundreds under a species of low fever.

A pest broke out among the cattle also, 30 per cent. of which are stated to have perished. Sambat 1869, or 1812-13, is still remembered there as the year of the great famine.

In 1824 hardly any rain fell, and the crops and grass failed. The dearth was, however, local, but large numbers of cattle died.

In 1833 the rainfall was very partial and the crops were consequently poor. Considerable distress (which extended to Mewar) existed throughout Sirohi, and, owing to the absence of grass, cattle perished in considerable numbers.

In 1848 scanty rains were succeeded by a similar state of things. Grain was imported from Gujarat, but cattle perished. There was also a great scarcity in Marwar. In 1850 and 1861 the rains set in favourably, but failed in both years. The spring crop of 1862 was destroyed by untimely heavy rain, and great scarcity was the result.

The rains of 1861 were excessive and numbers of people were carried off by an epidemic of fever; the survivors could not protect their crops, and the harvest was, to a great extent, carried off by Bhils and Minas.

During 1863 a kind of low typhoid fever appeared in the State, and was attributed by the people to the heavy rainfall. It ranged all over the country. It went on into 1864.

The prices of provisions were very high from 1859 to 1868. The State only prohibited the export of grain and reduced the duty on that which was imported.

No effort was made to construct tanks and embankments. Mahajans voluntarily subscribed to restore an old embankment at Pindwara, but the money did not get further than the Raj coffers.

No other States sent records as they kept none.

The above information was forwarded to the Foreign Department in response to enquiry.

These extracts from a report by the Political Agent in Sirohi are interesting. It is unfortunate that similar accounts could not be obtained from other States. But the neglect to keep such records shows the value of regular histories and the great difficulty in compiling information on any subject in India, in which it is desired to obtain materials which refer to any period more than twenty years back. Many records were lost in 1857, others were lost in previous wars, others have perished from exposure to weather and carelessness, and many have been deliberately destroyed by persons who were ignorant of their value.

## CHAPTER XIII.

### SANITATION.

In 1891 I read a paper on the "Progress of Sanitation and Preventive Medicine in Rajputana" before the Seventh International Congress of Hygiene and Demography in August 1891. It condensed all that it seemed necessary to say on the subject up to that date, and as I was furnished with official information as delegate at the Congress for Rajputana, it appears to me desirable to reprint the greater portion of the paper in the *Gazetteer* and to add as much as may be necessary to bring the subject up to date, which has not already been mentioned in previous Chapters or has been only briefly referred to in them:—

"A by no means flattering picture has been drawn of the insanitary condition of British India, and it has been shown how formidable the difficulties are which attend any efforts to improve it; but, on turning to the Native States, it will be seen that we are compelled to use yet darker colours in depicting the insanitary horrors which everywhere abound, and that we have to point out that even still greater troubles beset the path of the sanitarian in those important portions of the Empire.

"Notwithstanding the magnitude of the task, it has been proved that much has been done in British India to mitigate the evils which exist, and I think I am justified in claiming

that a somewhat similar success has been achieved in the Native States, and that, if we proceed slowly and cautiously, carrying the people with us, we may, with confidence, hope for still greater results in the future.

"Fortunately, India is a country of villages. Great towns are comparatively scarce, and to them European methods of cleansing can perhaps be more easily and usefully applied. Village sanitation is in some ways an easier problem, as the limited area to be dealt with is in our favour; but, though our rules may be few and simple, still strict supervision will be required in carrying them out, and enormous prejudices will have to be overcome before much real improvement can be effected.

"In a typical Rajputana Capital the ordinary condition is somewhat as follows:—The poorer classes defile the outskirts of the town, the vacant spaces, old buildings, and nearest highways without the slightest attempt at concealment: the richer inhabitants have private conveniences which are usually so out of repair that the whole house and neighbourhood reeks with foul odours which are painfully indicative of contaminated soil and masonry. There are few drains, and, as a rule, these are only cleansed during the monsoon season by the storm water. They are so imperfectly constructed that even then much of the sewage escapes into the earth, and in any case, unless there is a running stream close by, it is deposited on adjacent low ground, where it becomes a hotbed of infection, whilst the wells and tanks in the vicinity are of course contaminated. At the close of the rainy months houses and wells in low-lying situations have been frequently proved to have been the starting points for serious epidemics. Most of the occupiers of Indian houses are so careless that they often permit several feet of the drain pipes which run down the outer sides of their dwellings to remain for years in a broken state, so that the sewage, instead of running off into the cesspools or gullies, escapes and saturates the walls. These gullies are narrow passages between the houses which ought to be cleansed every day by the sweepers, but rarely are thoroughly purified until their contents have overflowed for weeks into the streets. No man cares what becomes of filth after it is supposed to have left his own house, and even there it is masked by the use of strong perfumes and by superficial washings, perhaps with coloured water. Draught bullocks and horses are stalled round the open court below the family rooms of the most wealthy citizens. Here the sick are also lodged. Milch kine pick up a living in the streets, and their appetites are so depraved that they act as scavengers. At night they live in filthy byres, even below the windows of powerful nobles. Only six months ago a friend of my own, one of the principal nobles of Jaipur, complained to me bitterly that he could not keep open the windows of his private rooms on account of the filthy state of an adjacent cow-shed. He had no legal remedy, nor had the owner of the cattle any against the complainant who somewhat inconsistently allowed the drainage of his own palace to flow into the street. A few years ago an opportunity was afforded me of showing some of these things to a high English official. He was horrified to find a sick native gentleman lying in a room next door to the family stables, and immediately asked whether a change for the better could not be made. I proved to him that nothing short of a revolution in the habits of the people and a re-construction of the city of Jaipur could remedy that evil. The litter from stables and cow-yards, if not eaten by the animals themselves, is used over and over again until it rots.

The solid excreta of cattle are turned into fuel, and the liquid escapes into the earth to such a degree that the whole soil becomes highly charged with saline and ammoniacal matter by which the wells are contaminated, and in time their contents are rendered undrinkable, so that the city from this cause, and probably from the increasing mortality, has to be abandoned. This explains why almost every great Rajput Capital has at least one, but often two or even more, ancient cities close beside it which are now mere ruins. Jaipur, for example, has its Amber, and Jodhpur its Mundore. The British cities of Delhi and Agra are also cases in point. The whole plain round Shahjehanabad or modern Delhi is covered with the ruins of former capitals. In the city of Jaipur, which was founded as late as in 1728 A.D., only 49 of its 827 wells now contain sweet water. Another reason for the fouling of these wells is the fact that they are usually situated at low points, while the general level of the surrounding soil has been raised by the solid impurities and sweepings which have accumulated to such a degree as to be, in some cases, many feet above the courts and doorways of the houses.

"Having thus indicated a very few only of the insanitary defects of large native cities, I will now turn to the country towns and villages, where every man does what is right in his own eyes, unchecked by the officials, by the nobles, or by public opinion. The village lanes, it may be, are less defiled by human beings than the streets of towns, but solely because the open country is nearer at hand; anyone, however, who has seen a small town or a large village in the north of Rajputana will not easily forget the want of delicacy of the populace nor cease to wonder at the indifference of the local magnates who allow the very gateways of their castles to be used as Temples of Cloacina. Many Bombay and Calcutta Marwari millionaires have their ancestral homes in these desert villages, and the contrast between the wealth displayed within their palatial residences and the condition of the waste ground and lanes without their walls is something astounding. All manure which is not used as fuel is stored up close to the cattle yards and sheep folds until it can be used in the fields. All that is not ultimately removed for agricultural purposes, or which is not devoured by the village pigs and other animals, remains to form huge kitchen-middens that in time raise the village site high above the plain. The neighbourhood of wells is rarely cleansed, and the storm water often runs directly into them; but it is the village tank, on the margin of which the dead are burned and the dyer carries on his filthy trade, that is the centre of horrors. Here may be seen side by side buffaloes wallowing in the mud, the sacred kine drinking while standing in the water, holy Brahmans washing their clothes and persons and cleansing their mouths, while the patient women fill their earthen waterpots with the precious but filthy fluid which is to serve for cooking and drinking purposes. At the end of a hot and dry season the water in a Rajputana village tank contains little but sewage. Is it, therefore, surprising that diarrhoea carries off many of the villagers, and that cholera, when it appears, spreads like wildfire, until, in despair, the people fly from the spot and encamp in the jungle or on waste lands, where, in spite of heat, wind, and even storm, they are soon healed?

"The difficulty attending the sanitation of villages is in many cases much increased by their low situation, which renders them particularly unhealthy after the wet season. On the other hand, they are swept through and through by the life-giving winds which blow so violently during many months of the year in North India.

"There remain for description innumerable difficulties attendant upon the prejudices and conservative habits of the people, which are too often, unfortunately, on the wrong side. There is, in the first place, in the ordinary Indian mind an utter disbelief in any but ceremonial cleanliness. For example, a Hindu may not eat from the hands of a man of a different caste from himself, unless (as in the case of the Nai or barber for the Rajput) that caste is permitted by custom to cook for him; but he will partake without question of food that has been well mixed up in a great iron pot by the rough uncleansed feet of a *bhai* or caste fellow, or pass a cigar from mouth to mouth. In the village feasts in many parts of Rajputana, especially amongst the Mhairs and Minas, filthy proceedings of the kind have often been observed. I am afraid it is little better amongst men of high degree. I believe that the *parshad*, or holy food, of which all castes may partake at certain sacred places, is not prepared in a much more refined fashion. Careful Hindus carry with them on their travels a brass pot or *lotah* to which is attached a long cord, to enable them to draw their own water from the wells. This cord is soon defiled and so becomes the means of contaminating the water in the wells, and thus may easily lead to the spread of cholera. The brass vessel itself is only cleansed by rubbing it with the foul sand near the man's camping ground, and what a camping ground may become can only be appreciated by those who have seen it after an army of *sipahis* or pilgrims has passed on from it. Epidemics arise most frequently, as we well know, where men congregate in large numbers, but it requires something more than ordinary filth to originate true cholera. Every year fatal cases of so called summer diarrhoea occur after Indian fairs, and many of these are, I believe, traceable to the habit,—which is a very common one in Rajputana,—of pilgrims taking with them from their distant homes perhaps as much as a fortnight's supply of cooked, and therefore stale, food, which they wrap up in a dirty waist cloth or turban and wear in the heat on their filthy bodies.

"The ways of defiling water and food are indeed innumerable. The Brahman washes himself daily as a religious ceremony, but with him, as with too many of his countrymen, or with the Musalman, who in the desert may purify himself with sand, the act is only symbolical, and the washing is, after all, merely a superficial dip in the water, which may be inconceivably filthy, and even that water may be allowed to drip back into the well or on to the well slab, on which the traveller prepares his food. From this it is clear that the protection of wells is a most important matter, which is, however, too often neglected. These are religious prejudices against cleanliness that even the most advanced persons, and <sup>subordi-</sup> are many such in India, are almost powerless to resist. I remember the case of an <sup>it really</sup> Bachelor of Medicine, who was ready enough to lecture on the virtues of cleanliness, <sup>merits</sup> who, for several years after his birth, would not allow his own child to be washed, because it had been dedicated to a distant Goddess, to whom it must be presented before it had its first bath.

"There are innumerable dirty habits, such as expectorating betel on the walls of rooms and staircases, sleeping at night in close, ill-ventilated cells in the clothes worn during the day, or with head and neck enveloped in a filthy cloth, and very many others, all of which are set forth *ad nauseam* by a Bengali gentleman in a curious little manual which he has published for the benefit of his English-speaking countrymen, and which I need not further describe. Again, there is the family system of living in conjoint households, which brings a



great many people together into such intimate relations as must promote insanitation, the accumulation of filth, immorality, and indelicacy, mainly on account of the rigid observance of the laws of purification, which are in brief those of the old Mosaic Code as laid down in certain chapters of the book Leviticus. This touches upon the zenana, which is not so much a question as some suppose of superior delicacy as of what an Indian terms "*izzat*," or family honour and pride. The zenana, instead of being the most pleasant part of the house, is far too often the least cleanly, the darkest, and most miserable portion of it. Fortunately, much is being done by Lady Dufferin's excellent scheme and by other agencies to throw light into these dismal dwellings. In my remarks on Hindus and their houses, I, of course do not refer to the happy exceptions, which are, alas, as yet far too few.

"The sanitarian has to contend with vested interests, particularly of owners of property, of agriculturists, and of sweepers. The expense of re-arranging town habitations to meet modern sanitary requirements would be enormous; so also would be the construction of drains in villages. No doubt the State should help in many such projects, but progress must of necessity be very gradual in this direction. The native agriculturist opposes all improvements which cost money or give him extra trouble. He is rarely, if ever, a capitalist, so cannot afford to store up manure or to trench it. Near the cities the sweeper has hitherto put the manure on the fields at the exact times and on the exact spots on which the cultivator wanted it, and all the latter had to do was to cover it up, and plough it in. No Municipality can do as much, and in many parts of India few agriculturists will undertake to carry the soil themselves, even when it is stored up in convenient depôts until wanted. The convenience of both peasant and sweeper has, therefore, until now, led to the storing up of filth in the towns themselves until the cultivating season. Much of the natural animal manure is lost by the conversion of it into dried cakes for fuel, owing to the scarcity of wood. The women are engaged for many hours every day in preparing it with their own hands, from which results a further evil, *viz.*, that the poor cannot have clean food as long as their wives are compelled to follow this vile practice. A true sanitary reform is, therefore, the extension of forests with the provision of cheap fuel. Here, however, the agriculturist gives further trouble by demanding why his grazing rights are restricted, as they necessarily are by forest reservation. On every hand fresh difficulties spring up.

"The sweeper holds hereditary office, and sometimes even goes so far as to payn or sell side by side hts. In the city of Jaipur there are more than 1,500 private sweepers. One man water, holy enjoy the privilege of serving a dozen families in as many different quarters of the the patient and so may be compelled to spend the greater part of his time in the waste labour of running from house to house. He will not give up his claim upon a single family, as there are perquisites attached to his office, such as the daily receipt of food, the presentation of clothing on certain occasions, and even the robes in which the dead are wrapped—a very fertile mode, by the way, of spreading disease, and one which in Jaipur we have tried but in vain to mitigate by offering to disinfect all such articles for nothing. The re-distribution of these sweepers' walks is one of the greatest troubles our municipalities have to deal with. Some years ago I calculated that the sweepers of Jaipur had never been able to remove more than a fourth of the ordure from the city. I have shown how dogs, cows, Brahmani bulls, swine, peafowls, kites, and vultures do their best with what is left, and if these crea-

tures did not do the work fairly well, life in Indian towns and villages would, perhaps, be impossible.

"It is said that there are 10,000 pariah dogs in Bikaner, a city of perhaps 50,000 inhabitants, and yet all earn a living, and look sleek, fat and strong. In the absence of a scientific sanitary system, nothing could replace them. All this shows how very careful we must be in interfering with what would appear truly to be natural compensation: for example, with the hyperlactation of children who are nursed by their mothers long after they can run about, or with the boiling of milk, which is universal; as it is, perhaps, to these two practices that we owe the fact that there are in India any children who survive infancy. Nearly all the milk comes from foul-feeding cattle. We are not even sure that the universal use of opium for children is wholly injurious; at all events, to enforce mothers to give it up in Rajputana would cause a rebellion.

"One result of all these terrible evils is so great that some physicians have gone so far as to declare that we rarely see a case of enteric fever in a native adult, because almost every child who survives has suffered from it in early life. I may observe here that the *baidis*, *hakims*, and other practitioners of the indigenous medical systems have done nothing in the way of preventive medicine or of sanitary improvement. In carrying out important sanitary projects we must be very careful how we proceed, as failure on a large scale alarms the people and hinders progress. Within my own experience I have known of the bursting of one large reservoir, the failure of another on account of leakage, the subsidence of the water level and diminution of the water-supply in a whole district, and the breakage of the embankment of a huge artificial lake, all from defective engineering and want of appreciation of the difficulties attending such undertakings. It is in vaccination, perhaps, that our greatest trials have arisen. Ignorance and prejudice have attributed deaths from disease to the operation itself; our objects have been misrepresented: it has been stated that we are in search of the Imam Mehdi of the Musalmans, who is said to have milk in his veins, or of the Kalki Avatara of Vishnu, who bears marks which doctors would recognize, either of which powerful beings would put an end to British rule; and last, but not least, anti-vaccinationists have appeared even on the edge of the desert in the persons of rich traders returning home from Calcutta, where they have learned the most refined and most modern forms of obstruction. I am inclined, however, to believe with Rao Bahadur Kantee Chunder Mookerjee, the able and enlightened minister of Jaipur, that until we can secure a higher class of subordinate officials than at present exists in Rajputana, we shall not be able to carry out really important improvements. The men are ill-paid, though as well paid, perhaps, as their merits demand, as they are full of prejudices, very ignorant, and too often look upon taking bribes as innocent,—an opinion which is quite in accord with that of the general public, who regard the offering of bribes as also free from blame.

"Having so far indicated the stupendous difficulties with which sanitarians have to deal in Native States, I am in a position to state what had been done in Rajputana, the province which I represent, at this Congress; and, although you may have formerly thought that more might have been done, I think, now that you have been made acquainted with the overwhelming odds against which we have had to contend, I may fairly ask you to give the Native

Chiefs, the British and Native officials, both lay and professional, a good deal of credit for what, under the circumstances, is substantial progress.

"The Native States form no mean portion of the empire, as with an area of about 638,000 square miles, or more than two-fifths of the whole, they have 65½ million inhabitants or nearly eight thirty-fifths of the total population of India. The province of Rajputana alone covers 129,750 square miles, or nearly 9,000 more than Great Britain and Ireland, and has more than 12 million inhabitants, of whom about a fourth live in the State of Jaipur, for the sanitary and medical arrangements of which I am directly responsible. Medical, engineering and sanitary progress go hand in hand, and statistics regarding one branch give some indication of what is being done in the others. All Civil Engineers, and medical officers, with their dispensaries, are centres from which the sanitary light radiates. I shall, therefore, quote some statistics regarding medical progress.\*

"As regards general sanitary improvements in Rajputana in the large towns, special attention should be drawn to the water-supply. The city of Jaipur has been provided, under the able supervision of Colonel Jacob, C.I.E., the State Engineer, with an excellent constant service obtained from an adjacent stream. At Jodhpur new tanks have been made, from which water is brought into the city by aqueducts. At Ajmer an elaborate scheme has also been carried out; but much remains to be done in the other large Capitals. At Jaipur, Ajmer, and Udaipur there are new and beautiful public gardens which are much appreciated by the people. As regards conservancy, the most energetic attempts to deal with the question have been made in Ajmer, Alwar, and Jaipur. In Jaipur, a 16-inch portable railway has been laid down inside the south wall of the city for a total length of 12,500 feet. Since 1887, by means of it 152,695 wagons of foul earth and 50,802 wagons of ordure have been removed, and in the year 1890, in addition, 893 dead animals. All this is over and above the work ordinarily done by the sweepers. In 1887, and in 1888 1,006 gullies or latrine lanes were cleaned out. So much foul earth was removed from the upper part of the city that it presented quite a new aspect. This work involved the putting down and taking up of 10 miles of line, and yet only one district of the city had so far been touched. Many latrines have been provided, and the first great step in all municipal improvement has been taken, *viz.*, that of clearly numbering the houses and naming the streets. Registration of births and deaths is carefully done in Jaipur, Alwar, and a few other Capitals, but is at present unreliable for the rural district and for the country generally. The main streets in Jaipur, Ajmer, and in some other cities are regularly swept, and, in some instances, watered. In Alwar, the sanitation was greatly improved under Dr. Pank, owing in a great measure to the personal support and interest of the Maharaja. In Jodhpur, Kotah, and other places, many latrines have been built.

"Great sanitary improvements have been recently made in Jodhpur under Dr. Adams, with the cordial support of the Darbar and of Colonel Powlett, C.S.I., the Resident; the present Prime Minister, Sir Partab Singh, K.C.S.I., takes great interest in the subject. Bikaner, too, has made great strides under Major Talbot, C.I.E., and Dr. Pank, aided by the State Council.

\* *NOTE.*—As this information is given in a previous Chapter of the Gazetteer in more detail, it is unnecessary to repeat it here.

"I have included Ajmer, although it is a British town, because it is in the centre of Rajputana and is under the same medical administration. Its sanitary progress, which has been great, naturally attracts the special attention of the Native Princes. It has a municipality, and has been particularly fortunate in having had, in Dr. Newman, the same health officer for a long term of years. Some of the smaller Capitals are still very backward.

"Extensive irrigation works, particularly in the Jaipur State, have also materially aided the sanitation by improving the food supply of the people. In all the States, perhaps the greatest progress has been made in vaccination, for, although but a small percentage of the population is as yet protected, sufficient has been done to very markedly reduce the mortality and disfigurement from small-pox. It is impossible to give the figures for any State, but epidemics in the Capitals are much less frequent and widespread than formerly. I remember when in one year alone more than 1,300 children died from small-pox in the city of Jaipur. Well may children be termed *Mata ka Khaj*, or the food of the Goddess of Small-pox. No such mortality has been approached within the past 15 years. Doctors T. French-Müllen and Adams have done special service in this cause.

"In the past, complaints of private individuals regarding nuisances were rarely attended to. Now all municipalities and health authorities make efforts to abate them, and, in consequence of the general improvement of government in many of the Rajput Native States, there is an increasing readiness to make such applications, and to believe that the law will be applied to all classes alike. Very much, however, has still to be done under this head. Some effort is being made, especially in Jaipur, to raise up a more educated class of officials, and the elements of sanitation are being taught in the schools and colleges. The young nobles at the Rajput College at Ajmer are not forgotten in this respect. In Jaipur I have circulated and posted up in many public places brief rules for the management of accidents and sanitary regulations, in the hope that good may be done. Similar efforts have been made in the other States, and special means are adopted to prevent the spread of epidemics by distributing medicines and by attending to the sanitation of fairs and other large gatherings. Surgeon-General Cunningham's Sanitary Primer has been used in many of our educational institutions, and a more advanced treatise has been issued by the Government of India for the use of students in the higher classes, but my own experience leads me to believe that, for a long time to come, Dr. Cunningham's valuable work will prove almost too difficult for the blank state of the ordinary Hindu mind on this subject. As example is better than precept, I may point to that set by many Native Princes and enlightened citizens. The palace of Jaipur is a perfect paradise to what it was when I knew it first, some 17 years ago. His Highness the Maharaja, the present owner, who is extremely liberal in all that concerns the health of his people, once hit the right nail on the head when he told me that he could only secure cleanliness by frequently moving his quarters from one set of rooms to another. Constant inspection by good officials is the secret of success. Insanitary trades still flourish within town limits, and can only be dealt with very gradually. The horrors attending native childbirth are well known. We are starting a school for teaching the *dhais*, or native midwives, the elements of good management in such cases. I may note that educated native gentlemen, who are fathers, are now frequently found studying the useful manuals of Dr. Murdoch Smith of Madras on this and kindred subjects.

"I wish I could speak favourably of the progress of sanitation in our villages. We publish only the most simple rules, as, for example, that all manure should be placed on the leeward side of the village, that the wells and the ground for a few yards round them should be kept clean, that well-parapets should be raised, that one water-source should be reserved for drinking purposes, and that the people should be compelled to go a certain distance outside the village for natural purposes. So far, little or nothing has been done, and for the reasons I have clearly indicated; yet I am sure it will be dangerous to use pressure. We must proceed slowly and with great tact, and always on the same lines, so that the evils attending change of officials may be minimized as much as possible. For this purpose it is wise to print full reports, so that the work done one year by one man may not be undone the next by his successor.

"Sir W. Moore, whom I regard as the father of modern sanitary progress in Rajputana, has described the enormous and complicated efforts which have been made to make a nation of 220,000,000 British subjects clean, and has shewn that most authorities have regarded the problem they have to deal with as a very complicated one. There is an instrument in use in Jaipur for recording all the ordinary meteorological phenomena by means of electricity. By most persons it would be looked upon as a most elaborate and intricate machine, but the inventor assures us that it is only complex, that is to say, it is the assemblage of a number of very simple instruments on the same plane. It appears to me that this is the kind of problem we have to deal with in the sanitation of the Native States, if not of all India. It varies in every part of the Peninsula, but in every case it will have to be, and can only be, dealt with by the most simple methods. It will be neither wise nor safe to press upon the people of India elaborate and difficult systems which require, to ensure success, heavy outlay, great care, and, in case of failure, punitive measures and undue interference with the liberty of the subject. The peasant must not be worried by those who desire to retain his affection and with it permanency of our rule in India. In the attempt to improve, we must work on those lines which have been proved by survival and experience to be the most fit. These will be found, as I have already indicated, in most Native States to be, in addition to the spread of knowledge by sanitary teaching in private schools and such like measures, the employment of hereditary sweepers to remove and place upon the soil for tillage the excreta of the towns, and in villages the more strict observances of the old Jewish law, which ordained that all that was insanitary should be done beyond the camp. The key to rural sanitation is the breaking up of villages, as far as possible, into isolated households and farmsteads, but cities must be specially and scientifically dealt with. Above all, we must beware how we apply occidental methods; with their constant progress and extreme changeableness, to the East, where the greatest tribute to a good ruler's name always was that in his time the land had rest. *Festina lente* should be the motto of all sanitation in India.

"I have only now to add that it has been impossible for me to do justice to all who have worked in Rajputana in the cause of sanitation. The Native Princes and their advisers before whom the subject has been kept in the greatest prominence by the Foreign Department of the Indian Government, have done far more than any one could have dreamed of 20 years ago, and officials, whether political, medical, European or Native, have shown an amount of zeal and energy which has been truly remarkable."

The above account brought sanitary progress in Rajputana to the year 1891. In 1892, it has been recorded that the subject was attended to in seven of the larger cities, and that village conservancy was under consideration in Alwar.

In 1893 and 1894 there was nothing special to remark except that the Government of India, in reviewing the report for the latter year, drew attention to the advantages to be gained by employing professional subordinate agency in order to ensure improvement of the vital statistics of Native States, and the better means of extending vaccination, of mitigating epidemic disease, and of sanitary work generally.

In the report for 1895, it was shown that a scheme of this kind had been force in Jaipur from 13th January 1893, from which date the Sanitary Department of that State had been put in charge; under the Superintendent of Dispensaries, of a Civil Assistant Surgeon who had undergone a short training in the bacteriological laboratory of Professor Hankin at Agra. I was able to announce at the Calcutta Medical Congress, which was held in December 1894, that the Jaipur Darbar, on my recommendation, had assented to the employment not only of an Assistant Surgeon but of a second Sanitary Inspector who had practical knowledge of the State. These officers were both Natives of Jaipur, and it was expected that they would be able to carry the people with them in their sanitary recommendations.

During the portions of the year in which it was possible to work in camp, they made careful and systematic inspections of as many villages as possible, recording on printed forms the numbers of inhabitants, of wells, and of tanks, the sanitary defects, and the suggestions they had made for improvement in every case. In this way by the time I left Jaipur finally in April 1898 a complete sanitary survey had been made of a large number of towns and villages, so that the wants of these places were fully known, and it was my hope that by degrees improvements of a valuable character would be effected.

In the last season the Inspectors worked in the Capital and made numerous sanitary reports for the information of the Municipality, whose duty it then became to carry out as far as possible their recommendations. The Superintendent of Dispensaries was referred to in all cases of difficulty. A small but well equipped bacteriological laboratory was provided, in which the Assistant Surgeon worked in the summer, and from this I also hoped for good results. It was recognized that punitive measures were not ordinarily to be adopted, but that real progress was to be expected from frequent inspection and the sympathetic assistance of the people themselves, whom it was necessary to teach the value of that manure which they too often threw away and the harm it was doing by being kept in the wrong place. In Jodhpur a conservancy railway was constructed, the use of which greatly improved the sanitation of that large city. In Bikaner the number of dogs, which almost equalled that of the people, was reduced by confining one sex in enclosures, but far too few latrines were provided.

My inspections pointed also to considerable advance in conservancy, especially in Alwar, Kotah, Jhalawar, Karauli and Bharatpur, but in nearly all the chief Capitals something was being done, though as yet the sanitation of the towns and villages in the district was not making much advance.

## CHAPTER XIV.

## LIST OF AGENTS TO THE GOVERNOR GENERAL IN RAJPUTANA, AND COMMISSIONERS AND CHIEF COMMISSIONERS, AJMER-MERWARA.

NAMES.	Assumed charge of office.	REMARKS.
<i>Agents to the Governor General, Rajputana, and Commissioners, Ajmer.</i>		
Lieut.-Col. A. Locket . . .	1832 . . .	Proceeded on leave, 29th November 1833, making over charge to his First Assistant, Major A. Spiers.
Major N. Alves . . . . .	18th April 1834 . . .	Proceeded on leave, 1st February 1839, making over charge to Captain J. Ludlow, Assistant to the Agent to the Governor General and Officiating Political Agent, Haraouti.
Lieut.-Col. J. Sutherland . . .	12th February 1839 . . .	Officiating; confirmed 15th February 1841.
Major C. Thoresby . . . . .	26th February 1844 . . .	Officiating during Colonel Sutherland's absence on leave.
Lieut.-Col. J. Sutherland . . .	2nd March 1846 . . .	Died at Bharatpur, 24th June 1848. Lieutenant C. L. Showers, Assistant Agent to the Governor General, in charge of the office.
Colonel J. Low, C.B. . . . .	20th November 1848 . . .	.....
Major D. A. Malcolm . . . . .	8th September 1851 . . .	Officiating during Colonel Low's absence on short leave to Simla.
Colonel J. Low, C.B. . . . .	1st December 1851 . . .	.....
Lieut.-Col. G. St. P. Lawrence . . .	25th December 1852 . . .	.....
Lieut.-Col. Sir H. M. Lawrence, K.C.B. . . . .	5th March 1853 . . .	Transferred to Lucknow as Chief Commissioner, Oudh, March 1857.
Lieut.-Genl. Sir James Outram, K.C.B. . . . .	...	Nominated in room of Sir H. M. Lawrence, but never joined.
Colonel G. St. P. Lawrence . . .	17th March 1857 . . .	.....
Major W. T. Eden . . . . .	10th April 1859 . . .	Officiating during the absence of Brigadier-General G. St. P. Lawrence, on furlough to England.
Brigdr.-Genl. G. St. P. Lawrence . . . . .	24th November 1860 . . .	Proceeded on furlough to England.

LIST OF AGENTS TO THE GOVERNOR GENERAL IN RAJPUTANA, ETC.—*continued.*

NAMES.	Assumed charge of office.	REMARKS.
<i>Agents to the Governor General, Rajputana, and Commissioners, Ajmer—contd.</i>		
Lieut.-Col. E. K. Elliot .	15th April 1864 .	Officiating; confirmed with effect from 1st November 1864, <i>vice</i> Major-General G. St. P. Lawrence, resigned; died at Nasirabad, 27th March, 1865; Lieutenant A. R. Bruce, Assistant to the Agent to the Governor-General, in charge of the office.
Lieut.-Col. W. F. Eden .	3rd April 1865 .	Died at Ahmedabad on 14th November 1867, on his way to England on furlough.
Lieut.-Col. R. H. Keatinge, V.C., C.S.I. . . . .	4th November 1867 .	Transferred to Nagpore as Officiating Chief Commissioner, Central Provinces.
Colonel J. C. Brooke . . .	15th June 1870 .	Officiating.

*Agents to the Governor General, Rajputana, and Chief Commissioners, Ajmer-Merwara.*

Colonel J. C. Brooke . . .	1st April 1871 .	Officiating.
Colonel Sir L. Pelly, K.C.S.I.	21st June 1873 .	Officiating; confirmed 6th February 1874.
Colonel W. H. Beynon . . .	...	Officiating from afternoon of 6th April to afternoon of 5th July 1874, during the absence of Sir L. Pelly on privilege leave.
Colonel Sir L. Pelly, K.C.S.I.	6th July 1874 .	.....
Mr. A. C. Lyall . . . . .	13th November 1874	.....
Major C. K. M. Walter . . .	...	Officiating from the afternoon of the 18th August 1876 to the afternoon of the 4th March 1877.
Mr. A. C. Lyall . . . . .	5th March 1877 .	.....
Major E. R. C. Bradford, C.S.I. . . . .	23rd March 1878 .	Confirmed, 12th December 1878.
Lieut.-Col. C. K. M. Walter	17th March 1881 .	Officiating.
Lieut.-Col. E. R. C. Bradford, C.S.I. . . . .	29th November 1882 .	.....
Colonel C. K. M. Walter . . .	27th March 1887 .	Officiating; confirmed with effect from 1st April 1887.



LIST OF AGENTS TO THE GOVERNOR GENERAL IN RAJPUTANA, ETC.—*concluded.*

NAMES.	Assumed charge of office.	REMARKS.
<i>Agents to the Governor General, Rajputana, and Chief Commissioners, Ajmer-Merwara—concl'd.</i>		
Colonel G. H. Trevor . . .	20th March 1890 . . .	.....
Colonel P. W. Powlett, C.S.I.	28th August 1891 . . .	Officiated in addition to his own duties as Resident, Western Rajputana States.
Colonel G. H. Trevor, C.S.I. .	2nd December 1891 . . .	On return from privilege leave.
Lieut.-Col. W. H. C. Wyllie, C.I.E. . . . .	5th November 1893 . . .	In charge of the current duties of the office.
Colonel W. F. Prideaux, C.S.I.	22nd November 1893 . . .	Officiating.
Colonel G. H. Trevor, C.S.I.	9th January 1894 . . .	On return from privilege leave.
Mr. R. J. Crosthwaite, C.S.I., I.C.S. . . . .	20th March 1895 . . .	On furlough.
Lieut.-Col. H. B. Abbott . . .	Ditto . . .	Officiating.
Mr. R. J. Crosthwaite, C.S.I., I.C.S. . . . .	28th October 1895 . . .	On return from furlough.

## LIST OF MEDICAL OFFICERS OF THE RAJPUTANA AGENCY.

No.	From	To	Name and title.
1	March 1839 . . .	20th June 1839 . . .	Asst. Surgeon R. H. Irvine.
2	1st July 1839 . . .	Vacant till 30th June 1839. October 1843 . . .	Do. do. T. Russell.
3	7th February 1844 . . .	Vacant till February 1844. 3rd July 1844 . . .	Do. do. A. Keir, M.D.
4	4th July 1844 . . .	12th January 1845 . . .	Do. do. John Bowhill, M.D.
5	13th January 1845 . . .	24th June 1847 . . .	Do. do. A. Keir, M.D.
6	1st June 1848 . . .	Vacant till May 1848. 28th February 1849 . . .	Do. do. R. W. Macaulay, M.D.
7	5th April 1849 . . .	Vacant till 4th April 1849. 4th July 1849 . . .	Do. do. I. M. Hay, M.D.

LIST OF MEDICAL OFFICERS OF THE RAJPUTANA AGENCY—*concluded.*

No.	From	To	Name and title.
8	5th July 1849 . .	12th December 1849 .	Asst. Surgeon J. Leckie, M.D.
9	13th December 1849 .	6th October 1851 .	Do. do. R. W. Macaulay, M.D.
10	7th October 1851 .	March 1858 . .	Do. do. H. A. Ebdon, M.D.
11	24th April 1858 .	30th June 1867 .	Do. do. T. M. Lowndes, M.D.
12	1st July 1867 . .	January 1877 .	Surgeon-Major W. J. Moore.
13	January 1877 . .	17th April 1877 .	Surgeon W. Beatson M.D. (Offg.)
14	17th April 1877 .	20th March 1881 .	Surgeon-Major G. S. Sutherland, M.D.
15	21st March 1881 .	17th March 1884 .	Do. do. L. D. Spencer, M.D.
16	18th March 1884 .	30th March 1885 .	Do. do. J. H. Newman, M.D. (Offg.)
17	31st March 1885 .	After May 1889	Brigade Surgeon L. D. Spencer, M.D.
18	During 1890 . .	.....	Surgeon-Major J. H. Newman, M.D. (Offg.)
19	1891 . . . .	August 1892 . .	Brigade-Surgeon L. D. Spencer, M.D.
20	August 1892 . .	After June 1893 .	Brigade-Surgeon-Lieutenant-Colonel J. H. Newman, M.D.
21	After June 1893 .	25th June 1895 .	Surgeon-Lieutenant-Colonel A. Adams, M.D. (Offg.)
22	26th June 1895 .	12th February 1897 .	Brigade-Surgeon-Lieutenant-Colonel T. H. Hendley, C.I.E.
23	13th February 1897 .	4th March 1897 .	Surgeon-Major H. N. V. Harington. (Offg.)
24	5th March 1897 .	6th December 1897 .	Surgeon-Lieutenant-Colonel A. Adams, M.D. (Offg.)
25	7th December 1897 .	6th April 1898 .	Brigade - Surgeon - Lieutenant-Colonel T. H. Hendley, C.I.E.
26	7th April 1898 .	.....	Lieutenant-Colonel A. Adams, M.D.

## CHAPTER XV.

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NOTE.—In some of the works the references to Rajputana are only of a general character. I am indebted to the catalogue of the collection of books of His Grace, Archbishop Dr. P. Goethals, of Calcutta, for the titles of many works.

